TABLE OF APPENDICIES

APPENDICES

Appendix A: List of State and Local Agencies Consulted

Table A-1: State Agencies Consulted

State	Contact
Colorado	• Mike Silverstein, Colorado Department of Public Health and Environment
Georgia	• Jimmy Johnston, Program Manager, Air Quality, Georgia Department of Natural Resources (Georgia DNR) • Elizabeth Muncey, Environmental Engineer, Georgia DNR
Louisiana	• Jim Orgeron, Acting Program Manager, SIP Group, Louisiana Department of Environmental Quality
Maryland	• Brian Hug, Deputy Manager, Air Quality Program Planning, Maryland Department of Natural Resources (MDDNR) • Randy Mosier, MDDNR
North Carolina	• Laura Boothe, Attainment Planning Branch Supervisor, North Carolina Department of Environment and Natural Resources (NCDENR) Division of Air Quality (DAQ) • Sheila Holman, NCDENR DAQ
New Mexico	• Andy Berger, Control Strategies Section Chief, New Mexico Environment Department (NMED) • Mark Jones, Environmental Analyst, Farmington Field Office, NMED
Oklahoma	• Leon Ashford, Environmental Programs Specialist, Oklahoma Department of Environmental Quality
South Carolina	• Renee Shealy, South Carolina Department of Health and Environmental Control (South Carolina DHEC) • Melinda Mathias, South Carolina DHEC • Robbie Brown, South Carolina DHEC • Michael Monroe, South Carolina DHEC • Adam Page, South Carolina DHEC • Nelson Roberts, South Carolina DHEC
Tennessee	• Barry Stephens, Director, Air Pollution Control Division (APCD), Tennessee Department of Environment and Conservation (TDEC) • Quincy Styke, Deputy Director, APCD, TDEC
Texas	• Kelly Keel, Team Leader, Texas Commission on Environmental Quality (TCEQ) • Theresa Pella, SIP Section Manager, TCEQ • Kim Herndon, TCEQ

Table A-1: State Agencies Consulted

State	Contact
Virginia	• Tom Ballou, Director, Air Data Analysis and Planning Division, Virginia Department of Environmental Quality
West Virginia	• Fred Durham, Deputy Director, Division of Air Quality, West Virginia Department of Environmental Protection and Assistant Director for Planning, West Virginia Department of Environmental Protection

Table A-2: Local Government Agencies Consulted

Area	Contact
Nonattainment Deferred EAC Program Areas	
Chattanooga, Tennessee/Georgia	• Bob Colby, Director, Chattanooga-Hamilton County Air Pollution Control Board, Tennessee
Denver-Boulder-Greeley-Fort. Collins-Loveland, Colorado	• Ken Lloyd, Denver Regional Air Quality Council
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	• Sandra Yundice, Assistant County Administrator, Greenville County • Kevin Robinson, Associate Planner, Planning Department, Greenville County • John Owings, Manager of Air Planning, Greenville County • Dan Powell, Planning Department, Greenville County
Northern Shenandoah Valley, Virginia	• Patrick Barker, Executive Director, Winchester-Frederick County Economic Development Commission
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	• Virginia G. Booker, Assistant Director, Piedmont Triad Council of Governments
Washington County, Maryland	• Jill Baker, Senior Planner, Washington County Department of Planning
Attainment EAC Program Areas	
Austin, Texas	• Cathy Stephens, Capital Area Metropolitan Planning Organization
Oklahoma City, Oklahoma	• Darla Hugaboom, Associate Planner, Transportation Division, Association of Central Oklahoma Governments
Lower Savannah-Augusta, South Carolina-Georgia	• Stephen Strohminger, Development Official, Aiken County, South Carolina
Other Ozone Nonattainment Areas (Control Cases)	
Knoxville, Tennessee	• Lynne A. Liddington, Director, Knox County, Air Quality Management, Department of Public Health
Rocky Mount, North Carolina	• Bob League, Transportation Planner, Rocky Mount Urban Area Metropolitan Planning Organization • John Gessaman, President and Chief Executive Officer, Carolinas Gateway Partnership

Appendix B: Tables

Table B-1: Year-to-Year Changes in 8-hour Ozone Design Values (ppm) from 2001-2003 to 2004-2007 for 14 Nonattainment-Deferred Early Action Compact (EAC) Program Areas and Six Attainment EAC Program Areas, Not Controlling for Meteorology

EAC Program Areas	2001-2003 Design Value	2002-2004 Design Value	2003-2005 Design Value	2004-2006 Design Value	2005-2007 Design Value	Percent Change 2001-2003 versus 2005-2007
Nonattainment-Deferred EAC Program Areas						
Berkeley and Jefferson Counties, West Virginia	0.086	0.08	0.076	0.074	0.075	-13%
Chattanooga, Tennessee-Georgia	0.088	0.086	0.08	0.08	0.084	-5%
Columbia, South Carolina (Central Midlands Area)	0.089	0.086	0.083	0.082	0.082	-8%
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	0.087	0.084	0.084	0.081	0.085	-2%
Fayetteville, North Carolina (Cumberland County)	0.087	0.084	0.083	0.08	0.082	-6%
Frederick Co, Virginia	0.085	0.078	0.073	0.071	0.073	-14%
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	0.093	0.087	0.082	0.08	0.083	-11%
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	0.087	0.084	0.081	0.083	0.083	-5%
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	0.088	0.082	0.077	0.075	0.078	-11%
Johnson City-Kingsport-Bristol, Tennessee	0.086	0.084	0.079	0.079	0.083	-3%
Nashville, Tennessee	0.086	0.083	0.082	0.083	0.084	-2%
Roanoke, Virginia	0.085	0.079	0.074	0.074	0.076	-11%
San Antonio, Texas	0.089	0.091	0.086	0.087	0.082	-8%
Washington Co (Hagerstown), Maryland	0.086	0.083	0.078	0.078	0.079	-8%
Attainment EAC Program Areas						
Austin, Texas	0.084	0.085	0.082	0.082	0.08	-5%
Berkeley-Charleston-Dorchester, South Carolina	0.072	0.072	0.073	0.075	0.074	3%
Mountain Area of Western North Carolina (Asheville)	0.083	0.081	0.078	0.078	0.079	-5%
Oklahoma City, Oklahoma	0.080	0.079	0.079	0.081	0.080	0%
Lower Savannah-Augusta, South Carolina-Georgia	0.067	0.068	0.069	0.069	0.067	0%
Tulsa, Oklahoma	0.083	0.079	0.079	0.079	0.080	-4%

Source: Air Quality System, U.S. Environmental Protection Agency (EPA).

Table B-2: Year-to-Year Changes (and Percent Change) in 8-hour Air Quality Index Days from 2001 to 2007 for 14 Nonattainment-Deferred EAC Program Areas and 6 Attainment EAC Program Areas, Not Controlling for Meteorology (May to September Ozone Season)

EAC Program Area	2001	2002	2003	2001-2003 Average	2004	2005	2006	2007	2005-2007 Average	Change From 2001-2003 to 2005-2007	Percent Change 2001-2003 to 2005-2007
Nonattainment-Deferred EAC Program Areas											
Berkeley and Jefferson Counties, West Virginia	5.0	6.0	2.0	4.3	1.0	1.0	1.0	1.0	1.0	-3.3	-77%
Chattanooga, Tennessee-Georgia	5.0	31.0	3.0	13.0	1.0	1.0	6.0	4.0	3.7	-9.3	-72%
Columbia, South Carolina (Central Midlands Area)	3.0	18.0	2.0	7.7	3.0	7.0	2.0	3.0	4.0	-3.7	-48%
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	2.0	9.0	21.0	10.7	0.0	2.0	7.0	8.0	5.7	-5.0	-47%
Fayetteville, North Carolina (Cumberland County)	4.0	18.0	4.0	8.7	0.0	8.0	0.0	2.0	3.3	-5.3	-62%
Frederick Co, Virginia	5.0	9.0	1.0	5.0	1.0	0.0	1.0	0.0	0.3	-4.7	-93%
Greensboro-Winston-Salem-High Point, North Carolina (Triad Area)	20.0	31.0	7.0	19.3	0.0	3.0	5.0	6.0	4.7	-14.7	-76%
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	12.0	27.0	4.0	14.3	2.0	3.0	4.0	3.0	3.3	-11.0	-77%
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	2.0	10.0	3.0	5.0	0.0	0.0	0.0	0.0	0.0	-5.0	-100%
Johnson City-Kingsport-Bristol, Tennessee	6.0	13.0	3.0	7.3	0.0	3.0	4.0	5.0	4.0	-3.3	-45%
Nashville, Tennessee	7.0	21.0	6.0	11.3	1.0	4.0	7.0	15.0	8.7	-2.7	-24%
Roanoke, Virginia	5.0	5.0	1.0	3.7	0.0	0.0	0.0	1.0	0.3	-3.3	-91%
San Antonio, Texas	1.0	17.0	7.0	8.3	7.0	4.0	4.0	1.0	3.0	-5.3	-64%
Washington Co (Hagerstown), Maryland	5.0	17.0	3.0	8.3	1.0	2.0	1.0	1.0	1.3	-7.0	-84%
Attainment EAC Program Areas											
Austin, Texas	1.0	5.0	3.0	3.0	2.0	3.0	4.0	1.0	2.7	-0.3	-11%
Berkeley-Charleston-Dorchester, South Carolina	0.0	1.0	0.0	0.3	1.0	0.0	1.0	0.0	0.3	0.0	0%

Table B-2: Year-to-Year Changes (and Percent Change) in 8-hour Air Quality Index Days from 2001 to 2007 for 14 Nonattainment-Deferred EAC Program Areas and 6 Attainment EAC Program Areas, Not Controlling for Meteorology (May to September Ozone Season)

EAC Program Area	2001	2002	2003	2001-2003 Average	2004	2005	2006	2007	2005-2007 Average	Change From 2001-2003 to 2005-2007	Percent Change 2001-2003 to 2005-2007
Mountain Area of Western North Carolina (Asheville)	2.0	14.0	0.0	5.3	0.0	1.0	1.0	1.0	1.0	-4.3	-81%
Oklahoma City, Oklahoma	2.0	3.0	2.0	2.3	0.0	4.0	11.0	2.0	5.7	3.3	143%
Lower Savannah-Augusta, South Carolina-Georgia	0.0	1.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	-0.3	-100%
Tulsa, Oklahoma	4.0	5.0	9.0	6.0	0.0	6.0	6.0	2.0	4.7	-1.3	-22%

Source: Air Quality System, EPA.

Table B-3: Changes in Seasonal Average 8-hour Daily Maximum Ozone Concentrations (ppm) from 2001-2003 to 2005-2007 for 14 Nonattainment-Deferred EAC Program Areas and 6 Attainment EAC Program Areas, Controlled and Uncontrolled for Meteorology

EAC Program Area	Changes in Changes in Seasonal Average 8-hour Ozone Concentrations From 2001-2003 to 2005-2007					
	Uncontrolled for Meteorology			Controlled for Meteorology		
	2001-2003 Average	2005-2007 Average	Percent Change	2001-2003 Average	2005-2007 Average	Percent Change
Nonattainment Deferred EAC Program Areas						
Berkeley and Jefferson Counties, West Virginia	0.052	0.051	-3%	0.055	0.048	-12%
Chattanooga, Tennessee-Georgia	0.061	0.059	-2%	0.062	0.056	-9%
Columbia, South Carolina (Central Midlands Area)	0.056	0.056	-1%	0.058	0.054	-6%
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	NA	NA	NA	NA	NA	NA
Fayetteville, North Carolina (Cumberland County)	0.059	0.055	-6%	0.059	0.056	-4%
Frederick Co, Virginia	0.053	0.050	-4%	0.055	0.048	-12%
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	0.063	0.061	-3%	0.064	0.058	-10%
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	0.058	0.058	0%	0.061	0.055	-10%
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	0.057	0.055	-4%	0.059	0.052	-11%
Johnson City-Kingsport-Bristol, Tennessee	0.058	0.059	1%	0.059	0.056	-5%
Nashville, Tennessee	0.061	0.062	2%	0.065	0.058	-11%
Roanoke, Virginia	0.054	0.053	-3%	0.055	0.050	-8%
San Antonio, Texas	0.053	0.048	-10%	0.054	0.047	-13%
Washington Co, Maryland (Hagerstown)	0.055	0.054	-3%	0.057	0.051	-10%
Attainment EAC Program Areas						
Austin, Texas	0.049	0.049	-1%	0.049	0.049	0%
Berkeley-Charleston-Dorchester, South Carolina	0.045	0.047	3%	0.047	0.047	-1%
Mountain Area of Western North Carolina (Asheville)	0.060	0.059	-2%	0.061	0.058	-6%
Oklahoma City, Oklahoma	0.059	0.057	-3%	0.059	0.055	-6%

Table B-3: Changes in Seasonal Average 8-hour Daily Maximum Ozone Concentrations (ppm) from 2001-2003 to 2005-2007 for 14 Nonattainment-Deferred EAC Program Areas and 6 Attainment EAC Program Areas, Controlled and Uncontrolled for Meteorology

EAC Program Area	Changes in Changes in Seasonal Average 8-hour Ozone Concentrations From 2001-2003 to 2005-2007					
	Uncontrolled for Meteorology			Controlled for Meteorology		
	2001-2003 Average	2005-2007 Average	Percent Change	2001-2003 Average	2005-2007 Average	Percent Change
Lower Savannah-Augusta, South Carolina-Georgia	0.037	0.042	12%	0.040	0.041	3%
Tulsa, Oklahoma	0.060	0.058	-3%	0.060	0.056	-6%

Source: Air Quality System. EPA and meteorological analysis by the Air Quality Assessment Group, Office of Air Quality Planning and Standards (OAQPS), using the method described in Camalier, L., Cox, W., Dolwick, P., 2007. The effects of meteorology on ozone in urban areas and their use in assessing ozone trends. Atmospheric Environment 41, 7127-7137.

Table B-4: Changes in Seasonal Average 8-hour Ozone Daily Maximum Concentrations (ppm) from 2001-2003 to 2005-2007 (Meteorologically-Controlled) for 14 Nonattainment-Deferred EAC Program Areas, 6 Attainment EAC Program Areas and 18 Non-EAC Program Areas

EAC Program Area	2001-2003 Average	2005-2007 Average	Percent Change
Nonattainment Deferred EAC Program Areas			
Berkeley and Jefferson Counties, West Virginia	0.055	0.048	-12%
Chattanooga, Tennessee-Georgia	0.062	0.056	-9%
Columbia, South Carolina (Central Midlands Area)	0.058	0.054	-6%
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	NA	NA	NA
Fayetteville, North Carolina (Cumberland County)	0.059	0.056	-4%
Frederick Co, Virginia	0.055	0.048	-12%
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	0.064	0.058	-10%
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	0.061	0.055	-10%
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	0.059	0.052	-11%
Johnson City-Kingsport-Bristol, Tennessee	0.059	0.056	-5%
Nashville, Tennessee	0.065	0.058	-11%
Roanoke, Virginia	0.055	0.050	-8%
San Antonio, Texas	0.054	0.047	-13%
Washington County , Maryland (Hagerstown)	0.057	0.051	-10%
Attainment EAC Program Areas			
Austin, Texas	0.049	0.049	0%
Berkeley-Charleston-Dorchester, South Carolina	0.047	0.047	-1%
Mountain Area of Western North Carolina (Asheville)	0.061	0.058	-6%
Oklahoma City, Oklahoma	0.059	0.055	-6%
Lower Savannah-Augusta, South Carolina-Georgia	0.040	0.041	3%
Tulsa, Oklahoma	0.060	0.056	-6%
Non-EAC Program Areas in the EAC Region in the East			
Atlanta, Georgia	0.067	0.064	-5%
Baltimore, Maryland	0.066	0.060	-9%
Birmingham, Alabama	0.062	0.057	-8%
Charlotte, North Carolina	0.064	0.059	-7%
Charleston, West Virginia	0.055	0.049	-10%
Cincinnati, Ohio	0.064	0.059	-9%
Huntington, West Virginia	0.063	0.054	-14%
Knoxville, Tennessee	0.068	0.062	-8%
Lexington, Kentucky	0.055	0.052	-5%

Table B-4: Changes in Seasonal Average 8-hour Ozone Daily Maximum Concentrations (ppm) from 2001-2003 to 2005-2007 (Meteorologically-Controlled) for 14 Nonattainment-Deferred EAC Program Areas, 6 Attainment EAC Program Areas and 18 Non-EAC Program Areas

EAC Program Area	2001-2003 Average	2005-2007 Average	Percent Change
Louisville, Kentucky	0.063	0.058	-8%
Memphis, Tennessee	0.064	0.058	-9%
Montgomery, Alabama	0.052	0.048	-9%
Philadelphia, Pennsylvania	0.064	0.060	-6%
Pittsburgh, Pennsylvania	0.063	0.057	-9%
Raleigh, North Carolina	0.062	0.056	-11%
Richmond, Virginia	0.062	0.056	-10%
Virginia Beach, Virginia	0.056	0.052	-7%
Washington, District of Columbia	0.065	0.061	-6%

Source: Air Quality System. EPA and meteorological analysis by the Air Quality Assessment Group, OAQPS, using the method described in Camalier, L., Cox, W., Dolwick, P., 2007. The effects of meteorology on ozone in urban areas and their use in assessing ozone trends. Atmospheric Environment 41, 7127-7137.

Table B-5: Control Measure Emission Reductions for Berkeley and Jefferson Counties, West Virginia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	362.9 kg/d	2.091%	1,723.7 kg/d	5.964%	35.13%	Y	Y	35.13%
Ozone action day program	N	Y	July 1, 2004	907.2 kg/d	5.228%	81.6 kg/d	0.283%	16.65%	N	N	
Public awareness program	N	Y	July 1, 2004	731.6 kg/d	4.216%	798.3 kg/d	2.762%	25.76%	N	N	
Bicycle/pedestrian measures	N	Y	Sep. 1, 2005	203.2 kg/d	1.171%	108.9 kg/d	0.377%	5.25%	N	N	
Reduce engine idling	N	Y	July 1, 2004	10.2 kg/d	0.059%	154.2 kg/d	0.534%	2.77%	N	N	
School bus engine retrofit	N	Y	Jan. 1, 2005	1.0 kg/d	0.006%	18.1 kg/d	0.063%	0.32%	N	N	
Voluntary -ground freight industry	N	Y	July 1, 2005	71.1 kg/d	0.410%	762.0 kg/d	2.637%	14.03%	N	N	
Open burning-increase compliance	N	Y	July 1, 2004	5.5 kg/d	0.032%	0.5 kg/d	0.002%	0.10%	N	N	
TOTALS	Y = 1 of 8 CM N = 7 of 8 CM	Y = 8 of 8 CM N = 0 of 8 CM		2,292.6 kg/d 922.4 t/yr	13.211%	3,647.3 kg/d 1,467.5 t/yr	12.621%	100.00%	Y = 1 of 8 CM N = 7 of 8 CM	Y = 1 of 8 CM N = 7 of 8 CM	35.13%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-6: Control Measure Emission Reductions for Chattanooga, Tennessee-Georgia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	14,455.1 kg/d	17.281%	21,386.0 kg/d	27.922%	72.72%	Y	Y	72.72%
Light Duty Motor Vehicle I & M	Y	Y	April 2005	1,905.1 kg/d	2.278%	1,079.5 kg/d	1.409%	6.06%	Y	Y	6.06%
Anti Motor Vehicle Tampering	Y	Y	Dec. 2004	NQ		NQ			N	N	
Volatile Organic Compounds Reductions	Y	Y	Dec. 2004						Y	Y	
Stage 1 Vapor Recovery (Tennessee)	Y	Y	May 2005	2,731.5 kg/d	3.266%			5.54%	Y	Y	5.54%
Seasonal Open Burning Ban (Tennessee)	N	Y	May 2005	1,458.8 kg/d	1.744%	526.2 kg/d	0.687%	4.03%	Y	N	
Vehicle I & M plan	Y	Y	April 2005	1,905.1 kg/d	2.278%	1,079.5 kg/d	1.409%	6.06%	Y	Y	6.06%
Ozone Action Days Program: Spare the Air (Tennessee)	N	Y	May 2004	178.7 kg/d	0.214%	137.0 kg/d	0.179%	0.64%	Y	N	
Ozone Action Days Program: Spare the Air (GA)	N	Y	May 2004	47.2 kg/d	0.056%	36.3 kg/d	0.047%	0.17%	Y	N	
Stage 1 Vapor Recovery (GA)	Y	Y	2005	293.0 kg/d	0.350%			0.59%	Y	Y	0.59%
Seasonal Open burning ban-ozone season (GA)	N	Y	2005 Ozone season	1,415.2 kg/d	1.692%	429.1 kg/d	0.560%	3.74%	Y	N	
Municipal Buses - Increased ridership (Tennessee)	N	Y	On-going	3.6 kg/d	0.004%	2.7 kg/d	0.004%	0.01%	Y	N	
Intelligent Transportation System: Smartway	N	Y	Early 2005	NQ		NQ			N	N	
HELP Trucks	N	Y	June 2000	NQ		NQ			N	N	
Diesel Retrofits (Tennessee)	N	Y	May 2004	8.2 kg/d	0.010%	56.2 kg/d	0.073%	0.13%	Y	N	
Diesel Retrofits (GA)	N	Y	May 2004	1.8 kg/d	0.002%	16.3 kg/d	0.021%	0.04%	Y	N	
Bike Trails and Bike Racks at Work Sites	N	Y	Implemented	NQ		NQ			N	N	
Pedestrian Greenways	N	Y	April 2004, March 2009	NQ		NQ			N	N	
Accelerated Replacement of On-Road Vehicles	N	N	2006	NQ		NQ			N	N	
Bio-diesel and Alternative Fuel Vehicles (Tennessee)	N	Y	Dec. 2004			135.2 kg/d	0.176%	0.27%	Y	N	
Replacement of on- and off-road diesel vehicles	N	Y	2005	NQ		NQ			N	N	
TOTALS	Y = 7 of 21 CM N = 14 of 21 CM	Y = 20 of 21 CM N = 1 of 21 CM		24,403.3 kg/d 9,818.5 t/yr	29.175%	24,884.1 kg/d 10,012.0 t/yr	32.489%	100.00%	Y = 14 of 21 CM N = 7 of 21 CM	Y = 6 of 21 CM N = 15 of 21 CM	90.97%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-7: Control Measure Emission Reductions for Columbia, South Carolina (Central Midlands Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	22,316.7 kg/d	17.526%	65,317.3 kg/d	57.270%	86.72%	Y	Y	86.72%
Air Quality Contact	N	Y	March 2003						N	N	
Gas can exchange plan	N	Y	June 2004						N	N	
Promote land-use planning to promote air quality	N	Y	Jan. 2003						N	N	
Participate in Clean Cities	N	Y	July 2003						N	N	
Industry Advisory Panel	N	Y	Summer 2004						N	N	
Purchase electric instead of golf carts	N	Y	On-going						N	N	
Purchase 15 CNG vehicles	N	Y	Late 2004						N	N	
Educate public; increase media alerts	N	Y	June 2003						N	N	
Speak to municipalities in County	N	Y	Spring 2003						N	N	
Flex/compress schedule- County employees	N	Y	On-going						N	N	
Encourage carpooling	N	Y	On-going						N	N	
Develop city and county energy plan	N	Y	On-going						N	N	
Encourage mass transit	N	Y	On-going						N	N	
Assign staff - air quality expert	N	Y	On-going						N	N	
Encourage not overfilling fuel tank	N	Y	June 2003						N	N	
County employees-restrict mowing during ozone action days	N	Y	On-going						N	N	
Land Development Code/Tree ordinances	N	Y	Jan. 2005 / TBD						N	N	
Reduce NOx, VOC emissions at International Paper	N	Y	On-going			2,485.4 kg/d	2.179%	2.46%	N	N	
Reduce NOx emissions from SCE&G - 2 coal fired boilers	N	Y	On-going			10,928.6 kg/d	9.582%	10.81%	N	N	
School Bus Retrofits	N	Y	Dec. 2005	1.0 kg/d	0.001%			0.00%	N	N	
Gas Can Exchange Events - 250 cans were distributed	N	Y	June 2004 & Oct. 2004	1.0 kg/d	0.001%			0.00%	N	N	
Improvements to Park and Ride lot at Highway 378 and I-20	N	Y	2003 - ongoing	1.1 kg/d	0.001%	0.6 kg/d	0.001%	0.00%	N	N	
Conversion of Commercial Vehicle Fleet to Propane	N	Y	2005	1.6 kg/d	0.001%	2.0 kg/d	0.002%	0.00%	N	N	
Biodiesel Buses, University of South Carolina.	N	Y	2002	0.0 kg/d	0.000%	0.0 kg/d	0.000%	0.00%	N	N	
University of South Carolina Ethanol Project	N	Y	On-going	0.0 kg/d	0.000%	0.0 kg/d	0.000%	0.00%	N	N	

Table B-7: Control Measure Emission Reductions for Columbia, South Carolina (Central Midlands Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Take a Break from the Exhaust program	Y	Y	On-going	0.7 kg/d	0.001%	0.5 kg/d	0.000%	0.00%	N	N	
SC DHEC has a number of flex fuel vehicles that run almost exclusively on E85.	N	Y	FY 2005 / FY 2006	0.1 kg/d	0.000%	0.1 kg/d	0.000%	0.00%	N	N	
Smart Ride – Mass Transit Program	Y	Y	On-going	0.2 kg/d	0.000%	0.3 kg/d	0.000%	0.00%	N	N	
Ethanol (E85) refueling station for public	N	Y	Oct. 2004	0.2 kg/d	0.000%	0.8 kg/d	0.001%	0.00%	N	N	
TOTALS	Y = 3 of 30 CM N = 27 of 30 CM	Y = 30 of 30 CM N = 0 of 30 CM		22,322.8 kg/d 8,981.5 t/yr	17.531%	78,735.7 kg/d 31,678.8 t/yr	69.035%	100.00%	Y = 1 of 30 CM N = 29 of 30 CM	Y = 1 of 30 CM N = 29 of 30 CM	86.72%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-8: Control Measure Emission Reductions for Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	32,023.6 kg/d	6.730%	36,287.4	9.894%	45.55%	Y	Y	45.55%
Lower Reid vapor pressure	Y	Y	Mar. 25, 2004	9,071.8 kg/d	1.907%			6.05%	Y	Y	6.05%
Reduce flash VOC emissions from condensate collection at various natural gas facilities	Y	N	by Dec. 31, 2007	49,895.2 kg/d	10.486%	0.0 kg/d	0.000%	33.27%	Y	Y	33.27%
Control IC engines>500 HP	Y	Y	Dec. 31, 2005	4,989.5 kg/d	1.049%	17,236.5 kg/d	4.700%	14.82%	Y	Y	14.82%
Control dehydration units	Y	Y	Dec. 31, 2005	453.6 kg/d	0.095%	0.0 kg/d	0.000%	0.30%	Y	Y	0.30%
TOTALS	Y = 5 of 5 CM N = 0 of 5 CM	Y = 4 of 5 CM N = 1 of 5 CM		96,433.7 kg/d 38,799.5 t/yr	20.266%	53,523.9 kg/d 21,535.0 t/yr	14.594%	100.00%	Y = 5 of 5 CM N = 0 of 5 CM	Y = 5 of 5 CM N = 0 of 5 CM	100.00%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-9: Control Measure Emission Reductions for Fayetteville, North Carolina (Cumberland County)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	6,350.3 kg/d	18.006%	8,527.5 kg/d	30.543%	87.70%	Y	Y	87.70%
Landscape ordinance - nonresidential	N	Y	Dec. 2005						N	N	
Smart growth audit	N	Y	Dec. 2005						N	N	
Pedestrian trails	N	Y	Dec. 2005						N	N	
Brownfield development	N	Y	On-going						N	N	
Shared parking facilities	N	Y	Dec. 2005						N	N	
Green space inventory	N	Y	March 2004						N	N	
185 vehicles converted to biodiesel	N	Y	Dec. 2005	4.5 kg/d	0.013%	2.7 kg/d	0.010%	0.04%	N	N	
Electrical outlets- reduce truck idling	N	Y	Oct. 2005						N	N	
Retrofit school buses	N	Y	by Summer 2005	381.0 kg/d	1.080%			2.25%	N	N	
Using ITS and dynamic message	N	Y	Dec. 2005						N	N	
Enhance mass transit	N	Y	Dec. 2005	226.8 kg/d	0.643%	7.3 kg/d	0.026%	1.38%	N	N	
Develop database-carpool	N	Y	June 2004						N	N	
Increase rural paratransit	N	Y	Dec. 2005						N	N	
Encourage Park and Ride for events	N	Y	On-going						N	N	
Use landfill gas; support NC Green Power	N	Y	On-going; Spring 2004			12.7 kg/d	0.045%	0.07%	N	N	
Energy efficient buildings	N	Y	On-going						N	N	
Energy reduction - LNB; water based paints	N	Y	On-going						N	N	
Air Quality Coordinator	N	Y	May 2003						N	N	
Student outreach	N	Y	On-going						N	N	
Public education outreach	N	Y	On-going						N	N	
Speakers bureau	N	Y	On-going						N	N	
Air quality web page	N	Y	On-going						N	N	
Promote bus youth riders	N	Y	On-going						N	N	
Education – libraries	N	Y	On-going						N	N	
Open burning ban -ozone action days	Y	Y	June 2004	181.4 kg/d	0.514%	90.7 kg/d	0.325%	1.60%	Y	Y	1.60%
Expand vehicle I & M	Y	Y	July 2003	544.3 kg/d	1.543%	635.0 kg/d	2.274%	6.95%	Y	Y	6.95%
TOTALS	Y = 3 of 27 CM N = 24 of 27 CM	Y = 27 of 27 CM N = 0 of 27 CM		7,688.4 kg/d 3,093.4 t/yr	21.800%	9,276.0 kg/d 3,732.1 t/yr	33.224%	100.00%	Y = 3 of 27 CM N = 24 of 27 CM	Y = 3 of 27 CM N = 24 of 27 CM	96.26%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-10: Control Measure Emission Reductions for Frederick County, Virginia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Architectural and Industrial Paints	Y	Y	Implemented	121.6 kg/d	0.468%			1.11%	Y	Y	1.11%
Consumer Products	Y	Y	Implemented	50.8 kg/d	0.196%			0.46%	Y	Y	0.46%
Metal Cleaning	Y	Y	Implemented	50.8 kg/d	0.196%			0.46%	Y	Y	0.46%
Motor Vehicle Refinishing Paint	Y	Y	Implemented	2.7 kg/d	0.010%			0.02%	Y	Y	0.02%
Small Gasoline Engine Standards	Y	Y	Implemented	736.6 kg/d	2.838%	24.5 kg/d	0.127%	6.95%	Y	Y	6.95%
Non-road Diesel Engine Standards	Y	Y	Implemented	42.6 kg/d	0.164%	250.4 kg/d	1.296%	2.68%	Y	Y	2.68%
Locomotive Engine Standards	Y	Y	Implemented			18.1 kg/d	0.094%	0.17%	Y	Y	0.17%
Large Gasoline Engine Standards	Y	Y	Implemented	61.7 kg/d	0.238%	225.0 kg/d	1.165%	2.62%	Y	Y	2.62%
Spark Ignition Marine Engine Standards	Y	Y	Implemented	3.6 kg/d	0.014%			0.03%	Y	Y	0.03%
On-road Motor Vehicle Standards	Y	Y	Implemented	2,821.3 kg/d	10.871%	4,662.9 kg/d	24.136%	68.37%	Y	Y	68.37%
Ozone action days/public awareness -multiple activities	N	Y	Spring 2005	272.2 kg/d	1.049%	18.1 kg/d	0.094%	2.65%	Y	N	
VMT Reduction programs - multiple activities	N	Y	Spring 2005	136.1 kg/d	0.524%	272.2 kg/d	1.409%	3.73%	N	N	
Open burning restrictions	N	Y	Spring 2005	254.0 kg/d	0.979%	108.9 kg/d	0.563%	3.31%	N	N	
Engine idling restrictions - trucks and school buses	N	Y	Spring 2005			90.7 kg/d	0.470%	0.83%	N	N	
School bus/heavy duty diesel retrofit	N	Y	Spring 2005	1.8 kg/d	0.007%	0.9 kg/d	0.005%	0.02%	N	N	
Voluntary industrial reductions	N	Y	Spring 2005						N	N	
Regional Reduction of NOx Emissions	Y	Y	May 31, 2004						Y	N	
RACT Controls -- VOC only, no NOx reductions	Y	Y	Nov. 15, 2005	718.5 kg/d	2.769%	0.0 kg/d	0.000%	6.56%	Y	Y	6.56%
Enhanced Ozone Forecasting tool	N	Y	2005						N	N	
State Cutback Asphalt Regulation	Y	Y	Nov. 2005	0.9 kg/d	0.003%	0.0 kg/d	0.000%	0.01%	Y	Y	0.01%
TOTALS	Y = 13 of 20 CM N = 7 of 20 CM	Y = 20 of 20 CM N = 0 of 20 CM		5,275.3 kg/d 2,122.5 t/yr	20.327%	5,671.7 kg/d 2,282.0 t/yr	29.358%	100.00%	Y = 14 of 20 CM N = 6 of 20 CM	Y = 12 of 20 CM N = 8 of 20 CM	89.45%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-11: Control Measure Emission Reductions for Greensboro-Winston Salem-High Point, North Carolina (Triad Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	36,287.4 kg/d	14.012%	362,951.2 kg/d	118.488%	97.34%	Y	Y	97.34%
Open burning ban -ozone action days	Y	Y	June 2004	1,905.1 kg/d	0.736%	1,360.8 kg/d	0.444%	0.80%	Y	Y	0.80%
Expand vehicle I & M	Y	Y	July 2002; July 2004	1,542.2 kg/d	0.596%	3,628.7 kg/d	1.185%	1.26%	Y	Y	1.26%
Purchase newer, less polluting vehicles	N	Y	Jan. 2004	2.7 kg/d	0.001%	2.2 kg/d	0.001%	0.00%	N	N	
Convert to biodiesel for all vehicles	N	Y	Spring 2003						N	N	
Contract incentives for low emission vehicles	N	Y	Possible						N	N	
Tax to support PART regional work program	N	Y	2003						N	N	
Add 20 Park and Ride lots	N	Y	2004-2007	4.5 kg/d	0.002%	8.0 kg/d	0.003%	0.00%	N	N	
Add 5 vans/yr to ridesharing	N	Y	Jan. 2004	1.7 kg/d	0.001%	1.7 kg/d	0.001%	0.00%	N	N	
Increase ridership on regional bus service	N	Y	On-going	22.1 kg/d	0.009%	18.1 kg/d	0.006%	0.01%	N	N	
Expand carpooling - PART	N	Y	Jan. 2004	57.7 kg/d	0.022%	47.2 kg/d	0.015%	0.03%	N	N	
RJ Reynolds-Monaco-Ville - eliminate use of coal fired boilers during ozone season	N	Y	2004			13.4 kg/d	0.004%	0.00%	Y	N	
Energizer-reduce vehicle fleet; 90% of forklifts-battery	N	Y	June 2004						N	N	
Duke-reduce mobile reading-56 trucks	N	Y	2003			2.8 kg/d*	0.001%	0.00%	N	N	
Duke-idling reduction guidelines	N	Y	Summer 2004						N	N	
Diesel retrofits-50-100school buses	N	Y	2004	42.3 kg/d	0.016%	57.2 kg/d	0.019%	0.02%	N	N	
No idling-all school buses	N	Y	2003						N	N	
Energy efficient public buildings	N	Y	2003 & ongoing						N	N	
Flex, compress work schedule; telecommuting	N	Y	On-going	469.7 kg/d	0.181%	385.2 kg/d	0.126%	0.21%	N	N	
ITS	N	Y	On-going						N	N	
Encourage non-motorized transportation	N	Y	On-going	693.4 kg/d	0.268%	569.2 kg/d	0.186%	0.31%	N	N	
Smart growth policies	N	Y	On-going						N	N	
Truck stop electrification	N	Y	July 2004; July 2005	4.5 kg/d	0.002%	87.0 kg/d	0.028%	0.02%	N	N	
Reduce fleet emissions	N	Y	Oct. 2004						N	N	
Emission reduction clearinghouse	N	Y	April 2005						N	N	
Hospital transportation shuttle	N	Y	April 2004						N	N	
Enhance mass transit facilities	N	Y	2004 & ongoing						N	N	

Table B-11: Control Measure Emission Reductions for Greensboro-Winston Salem-High Point, North Carolina (Triad Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Mass transit incentives	N	Y	Dec. 2005						N	N	
Commuter/intercity rail	N	Y	Fall 2004						N	N	
Feasibility of HOV/HOT lanes - I-40	N	Y	Summer 2005						N	N	
TOTALS	Y = 3 of 30 CM N = 27 of 30 CM	Y = 30 of 30 CM N = 0 of 30 CM		41,033.3 kg/d 16,509.5 t/yr	15.845%	369,132.7 kg/d 148,518.2 t/yr	120.506%	100.00%	Y = 4 of 30 CM N = 26 of 30 CM	Y = 3 of 30 CM N = 27 of 30 CM	99.39%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-12: Control Measure Emission Reductions for Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	37,920.3 kg/d	16.998%	60,962.8 kg/d	45.767%	76.509%	Y	Y	76.51%
Develop stakeholder group-regulatory development	N	Y	On-going			17,895.2 kg/d	13.434%	13.846%	N	N	
Ozone Action coordinator	N	Y	March 2003						N	N	
Low S fuels – ASAP	N	Y	On-going						N	N	
ITS-design and implement	N	Y	2003 / On-going						N	N	
Encourage use of hybrid vehicles	N	Y	2004-2005						N	N	
School buses-higher efficiency engines	N	Y	ASAP						N	N	
Promote bike paths	N	Y	2004						N	N	
Park & Ride to plants	N	Y	2004						N	N	
Downtown shuttles; rapid transit bus	N	Y	2004						N	N	
Free or reduced public transportation fares-ozone action days	N	Y	2004						N	N	
Integrate transportation planning with land use planning	N	Y	2004						N	N	
Review & update air emission inventory	N	Y	Fall 2003						N	N	
Seek reductions from major sources	N	Y	2005			1,242.7 kg/d	0.933%	0.962%	N	N	
Develop program to purchase or repair smoking vehicles	N	Y	2005						N	N	
Ban open burning of on-site commercial	N	Y	2004						N	N	
Incentives for purchasing high efficiency, low emissions vehicles	N	Y	2005						N	N	
Land use/transportation planning	N	Y	2004						N	N	
Encourage use of green power; capture landfill emissions	N	Y	2004						N	N	
Promote route efficiency for delivery vehicles and garbage trucks	N	Y	2004						N	N	
Encourage alternate work schedules	N	Y	2004						N	N	
Establish Park and Ride lots	N	Y	2004						N	N	
Encourage carpooling; telecommuting	N	Y	2004						N	N	
Establish active public awareness	N	Y	2004						N	N	
Promote research in energy efficiency - local universities	N	Y	2005						N	N	
Encourage use of alternate fuels	N	Y	On-going						N	N	
Evaluate use of HOV on 3 interstates	N	Y	2005						N	N	
Modify speed limits for optimum fuel efficiency	N	Y	2005 or 2006						N	N	

Table B-12: Control Measure Emission Reductions for Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Develop process for minimizing impact of major building projects	N	Y	2004						N	N	
Encourage community schools	N	N							N	N	
Improve landscape at county facilities	N	N							N	N	
Transco-early implementation of Phase 2	N	Y	Dec. 2005			6,365.2 kg/d	4.779%	4.925%	N	N	
Duke Power- install advanced low NOx burners	N	Y	Oct. 2005			4,761.1 kg/d	3.574%	3.684%	N	N	
School Bus Retrofits	N	N	2006	1.9 kg/d	0.001%			0.001%	N	N	
Gas Can Exchange Event - 115 cans were distributed	N	Y	June 2003	0.9 kg/d	0.000%			0.001%	N	N	
Truck Stop Electrification Project	N	Y	2004	4.6 kg/d	0.002%	90.0 kg/d	0.068%	0.073%	N	N	
TOTALS	Y = 1 of 36 CM N = 35 of 36 CM	Y = 33 of 36 CM N = 3 of 36 CM		37,927.7 kg/d 15,260.0 t/yr	17.001%	91,317.0 kg/d 36,740.8 t/yr	68.554%	100.00%	Y = 1 of 36 CM N = 35 of 36 CM	Y = 1 of 36 CM N = 35 of 36 CM	76.51%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-13: Control Measure Emission Reductions for Hickory-Morganton-Lenoir, North Carolina (Unifour Area)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	11,430.5 kg/d	18.424%	120,791.6 kg/d	147.007%	94.94%	Y	Y	94.94%
Open burning ban-ozone action days	Y	Y	June 2004	635.0 kg/d	1.024%	453.6 kg/d	0.552%	0.78%	N	N	
Local governments join NC Air Awareness Program	N	Y	2004						N	N	
Enhanced awareness; outreach; educate	N	Y	2003 / On-going						N	N	
Energy conservation plan	N	Y	2005	1.2 kg/d	0.002%	1.0 kg/d	0.001%	0.00%	N	N	
Staff person-air quality contact	N	Y	2004						N	N	
Adopt local clean air policy	N	Y	2005						N	N	
Landscape/tree ordinances	N	Y	2003 / 2005						N	N	
Implement Smart Growth	N	Y	2003 / 2005						N	N	
Encourage bicycle and pedestrian usage	N	Y	2003 / 2005	5.0 kg/d	0.008%	4.0 kg/d	0.005%	0.01%	N	N	
Support coordination of planning organizations	N	Y	2003						N	N	
Encourage compressed/flexible work	N	Y	2004	3.7 kg/d	0.006%	3.2 kg/d	0.004%	0.00%	N	N	
Expand transit and ridesharing	N	Y	2004	1.2 kg/d	0.002%	1.0 kg/d	0.001%	0.00%	N	N	
More efficient trafficking systems	N	Y	2005						N	N	
Expand vehicle I& M	Y	Y	July 2003 - July 2005	725.7 kg/d	1.170%	725.7 kg/d	0.883%	1.04%	Y	Y	1.04%
Clean Smokestacks Act	Y	Y	June 2005			4,490.6 kg/d	5.465%	3.22%	Y	Y	3.22%
TOTALS	Y = 4 of 16 CM N = 12 of 16 CM	Y = 16 of 16 CM N = 0 of 16 CM		12,802.5 kg/d 5,151.0 t/yr	20.636%	126,470.7 kg/d 50,884.7 t/yr	153.919%	100.00%	Y = 3 of 16 CM N = 13 of 16 CM	Y = 3 of 16 CM N = 13 of 16 CM	99.20%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-14: Control Measure Emission Reductions for Johnson City-Kingsport-Bristol, Tennessee

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	16,604.2 kg/d	15.049%	10,462.6 kg/d	8.051%	89.41%	Y	Y	89.41%
Light Duty Motor Vehicle I & M	Y	Y	April 2005						Y	Y	
Anti Motor Vehicle Tampering	Y	Y	Dec. 2004	NQ		NQ			N	N	
Volatile Organic Compounds Reductions	Y	Y	Dec. 2004						N	N	
Ozone Action Day Program	N	Y	2001	73.5 kg/d	0.067%	233.1 kg/d	0.179%	1.01%	Y	N	
Open burning ban during Ozone Action Days	Y	Y	Implemented	2,137.3 kg/d	1.937%	762.0 kg/d	0.586%	9.58%	Y	Y	9.58%
Transportation Emission Reduction Control Measures	N	Y	2005-2007	NQ		NQ			N	N	
Stage I Vapor Recovery	Y	Y	Dec. 2004	NQ		NQ			N	N	
TOTALS	Y = 6 of 8 CM N = 2 of 8 CM	Y = 8 of 8 CM N = 0 of 8 CM		18,815.0 kg/d 7,570.1 t/yr	17.053%	11,457.7 kg/d 4,610.0 t/yr	8.816%	100.00%	Y = 4 of 8 CM N = 4 of 8 CM	Y = 3 of 8 CM N = 5 of 8 CM	98.99%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-15: Control Measure Emission Reductions for Nashville, Tennessee

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	37,227.2 kg/d	21.738%	46,357.1 kg/d	21.074%	93.19%	Y	Y	93.19%
Light Duty Motor Vehicle I & M	Y	Y	April 2005	2,330.6 kg/d	1.361%	67.1 kg/d	0.031%	2.67%	Y	Y	2.67%
Anti Motor Vehicle Tampering	Y	Y	Dec. 2004	NQ		NQ			N	N	
Volatile Organic Compounds Reductions	Y	Y	Dec. 2004						Y	Y	
Traffic signal synchronization	N	Y	2004-2006	235.9 kg/d	0.138%	190.5 kg/d	0.087%	0.48%	N	N	
New infrastructure-rideshare program	N	Y	2004-2006	9.1 kg/d	0.005%	7.3 kg/d	0.003%	0.02%	N	N	
Trip reduction	N	Y	2004-2006	61.7 kg/d	0.036%	48.1 kg/d	0.022%	0.12%	N	N	
Roadside assistance program	N	Y	Implemented	28.1 kg/d	0.016%	28.1 kg/d	0.013%	0.06%	N	N	
Addition of HDGV2B Weigh Class Vehicles to existing IM program	N	Y	April 2005	40.8 kg/d	0.024%	20.9 kg/d	0.009%	0.07%	Y	N	
New pedestrian facilities; bikeways	N	Y	2004-2006	72.6 kg/d	0.042%	55.3 kg/d	0.025%	0.14%	N	N	
HOV lanes - I-24,40	N	Y	2004-2007	19.1 kg/d	0.011%	15.4 kg/d	0.007%	0.04%	N	N	
Ban open burning-ozone action days	Y	Y	March 2004	99.8 kg/d	0.058%	383.7 kg/d	0.174%	0.54%	Y	Y	0.54%
Improve bus ridership	N	Y	2004-2006	9.1 kg/d	0.005%	9.1 kg/d	0.004%	0.02%	N	N	
New Rail Service (Nashville-Lebanon corridor)	N	Y	2005-2006	54.4 kg/d	0.032%	27.2 kg/d	0.012%	0.09%	N	N	
Land use controls-reduce VMT	N	Y	2004 and Beyond	226.8 kg/d	0.132%	553.4 kg/d	0.252%	0.87%	N	N	
Air Quality Action Days	N	Y	Implemented	426.4 kg/d	0.249%	1,088.6 kg/d	0.495%	1.69%	N	N	
TOTALS	Y = 5 of 16 CM N = 11 of 16 CM	Y = 16 of 16 CM N = 0 of 16 CM		40,841.5 kg/d 16,432.3 t/yr	23.848%	48,851.9 kg/d 19,655.3 t/yr	22.209%	100.00%	Y = 5 of 16 CM N = 11 of 16 CM	Y = 4 of 16 CM N = 12 of 16 CM	96.40%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-16: Control Measure Emission Reductions for Roanoke, Virginia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Architectural and Industrial Paints	Y	Y	Implemented	337.5 kg/d	0.799%			1.24%	Y	Y	1.24%
Consumer Products	Y	Y	Implemented	161.5 kg/d	0.383%			0.59%	Y	Y	0.59%
Metal Cleaning	Y	Y	Implemented	147.9 kg/d	0.350%			0.54%	Y	Y	0.54%
Motor Vehicle Refinishing Paint	Y	Y	Implemented	143.3 kg/d	0.340%			0.53%	Y	Y	0.53%
Small Gasoline Engine Standards	Y	Y	Implemented	1,525.0 kg/d	3.612%	53.5 kg/d	0.128%	5.79%	Y	Y	5.79%
Non-road Diesel Engine Standards	Y	Y	Implemented	143.3 kg/d	0.340%	879.1 kg/d	2.094%	3.75%	Y	Y	3.75%
Locomotive Engine Standards	Y	Y	Implemented			1,008.8 kg/d	2.403%	3.70%	Y	Y	3.70%
Large Gasoline Engine Standards	Y	Y	Implemented	132.4 kg/d	0.314%	495.3 kg/d	1.180%	2.30%	Y	Y	2.30%
Recreational Engine Standards	Y	Y	Implemented	13.6 kg/d	0.032%	0.0 kg/d	0.000%	0.05%	Y	Y	0.05%
On-road Motor Vehicle Standards	Y	Y	Implemented	6,586.2 kg/d	15.602%	10,523.3 kg/d	25.069%	62.74%	Y	Y	62.74%
Reduce locomotive idling	N	Y	Implemented	0.0 kg/d	0.000%	138.8 kg/d	0.331%	0.51%	N	N	
Limit idling-school buses	N	Y	Implemented	0.0 kg/d	0.000%	2.7 kg/d	0.006%	0.01%	N	N	
Retrofit 100 school buses- oxidation catalyst	N	Y	Summer 2005	2.7 kg/d	0.006%	8.2 kg/d	0.019%	0.04%	N	N	
Retrofit 102 school buses - oxidation catalyst	N	Y	End of 2005						N	N	
Bio-diesel solid waste trucks-purchased	N	Y	Implemented	0.0 kg/d	0.000%	0.9 kg/d	0.002%	0.00%	N	N	
Ethanol alternative fuel vehicles	N	N	2007						N	N	
Biodiesel ready trucks	N	N	2007						N	N	
Hybrid vehicles	N	Y	Implemented	0.9 kg/d	0.002%	0.9 kg/d	0.002%	0.01%	N	N	
Alternative fuel vehicles	N	Y	Implemented	0.9 kg/d	0.002%	0.9 kg/d	0.002%	0.01%	N	N	
Implement effective environmental driving	N	Y	Implemented						N	N	
Public education: Air Quality Action Day	N	Y	Implemented						Y	N	
Timing of refueling vehicles	N	Y	Implemented						Y	N	
Promote alternative fuel vehicles	N	Y	Implemented & on-going						Y	N	
Media/public relations program	N	Y	Implemented						Y	N	
Public transit incentives	N	Y	Implemented						Y	N	
Bike Infrastructure and Amenities	N	Y	Urban implemented; Rural in progress						Y	N	
Expand public education program	N	Y	Implemented & on-going						Y	N	
Tree planting program	N	Y	On-going						Y	N	
Mass transit to Blacksburg	N	Y	Implemented	8.2 kg/d	0.019%	3.6 kg/d	0.009%	0.04%	Y	N	
Replace gas golf carts w/electric	N	Y	End of 2005			0.9 kg/d	0.002%	0.00%	N	N	
Replace gas mowers w/electric	N	Y	End of 2005	15.4 kg/d	0.037%	0.9 kg/d	0.002%	0.06%	N	N	
Open burning ban -expanded	N	Y	Implemented	0.0 kg/d	0.000%	215.9 kg/d	0.514%	0.79%	N	N	

Table B-16: Control Measure Emission Reductions for Roanoke, Virginia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Mandatory Restriction lawn equipment usage during ozone action days	Y	Y	Implemented	712.6 kg/d	1.688%	472.9 kg/d	1.127%	4.35%	Y	Y	4.35%
Voluntary Private Sector Restriction lawn equipment usage during ozone action days	N	Y	End of 2005	140.2 kg/d	0.332%	80.5 kg/d	0.192%	0.81%	Y	N	
Cradle to Cradle Design Competition	N	Y	End of 2005						N	N	
Regional Reduction in NOx emissions	Y	Y	May 31, 2004						Y	Y	
National Low Emission Vehicle Program	Y	Y	April 14, 1999						Y	Y	
Stage1 Vapor Recovery	Y	Y	Implemented	1,593.0 kg/d	3.774%	0.0 kg/d	0.000%	5.84%	Y	Y	5.84%
CTG RACT -- CTG VOC RACT and NOx RACT	Y	Y	Initiated 2005	996.1 kg/d	2.360%	716.7 kg/d	1.707%	6.28%	Y	Y	6.28%
State Cutback Asphalt Regulation	Y	Y	Initiated 2005	4.5 kg/d	0.011%			0.02%	Y	Y	0.02%
Enhanced Ozone Forecasting tool	Y	Y	2005						N	N	
TOTALS	Y = 17 of 41 CM N = 24 of 41 CM	Y = 39 of 41 CM N = 2 of 41 CM		12,665.2 kg/d 5,095.8 t/yr	30.002%	14,603.9 kg/d 5,875.8 t/yr	34.789%	100.00%	Y = 26 of 41 CM N = 15 of 41 CM	Y = 16 of 41 CM N = 25 of 41 CM	97.72%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-17: Control Measure Emission Reductions for San Antonio, Texas

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
ORVR, on-road and non-road federal measures	Y	Y	Implemented	28,667.0 kg/d	15.644%	21,309.8 kg/d	10.495%	52.34%	Y	Y	52.34%
Point source emission reductions from power plants	Y	Y	Implemented	961.6 kg/d	0.525%	35,842.9 kg/d	17.652%	38.54%	Y	Y	38.54%
Degreasing controls	N	Y	by Dec. 2005	85 %					N	N	
Reduced Stage I vapor recovery exemption level from 125k gal/mo to 25k gal/mo	N	Y	by Dec. 2005	5,270.7 kg/d	2.876%	0.0 kg/d	0.000%	5.52%	Y	N	
Energy efficiency / Renewable energy projects--TCEQ	N	Y	On-going	0.0 kg/d	0.000%	54.4 kg/d	0.027%	0.06%	N	N	
Transportation emission reduction measures (TERMs)	N	Y	by Dec. 2005	834.6 kg/d	0.455%	290.3 kg/d	0.143%	1.18%	Y	N	
Transportation Demand Management (TDM)	N	Y	by Dec. 2005	27.2 kg/d	0.015%	23.6 kg/d	0.012%	0.05%	N	N	
Alternative Fuel Vehicles	N	Y	On-going	28.1 kg/d	0.015%	312.5 kg/d	0.154%	0.36%	N	N	
Lawnmower Recycling Program	N	Y	by Dec. 31, 2005	51.8 kg/d	0.028%	2.2 kg/d	0.001%	0.06%	N	N	
Texas Emission Reduction Program (TERP)--upgrade on and nonroad mobile source diesel engines with cleaner equipment	N	Y	by Dec. 31, 2005	0.0 kg/d	0.000%	1,814.4 kg/d	0.894%	1.90%	Y	N	
Portable Fuel Container Rule	Y	Y	by Dec. 31, 2005	45 %					Y	Y	
Truck Stop Anti-idling program	N	Y	by Dec. 31, 2005						N	N	
Windshield Wiper Fluid	Y	Y	by Dec. 31, 2005						N	N	
Public education program	N	Y	by Dec. 31, 2005						N	N	
TOTALS	Y = 4 of 14 CM N = 10 of 14 CM	Y = 14 of 14 CM N = 0 of 14 CM		35,841.2 kg/d 14,420.5 t/yr	19.559%	59,650.0 kg/d 23,999.8 t/yr	29.377%	100.00%	Y = 6 of 14 CM N = 8 of 14 CM	Y = 3 of 14 CM N = 11 of 14 CM	90.88%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-18: Control Measure Emission Reductions for Washington County, Maryland (Hagerstown)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Other federal control measures	Y	Y	Before Dec 31, 2005	108.3 kg/d	0.449%	1369.8 kg/d	4.776%	18.06%	Y	Y	18.06%
On-road Motor Vehicle Standards	Y	Y	Implemented	861.8 kg/d	3.573%	3093.5 kg/d	10.786%	48.33%	Y	Y	48.33%
Small Gasoline Engine Standards	Y	Y	Implemented						N	N	
Gasoline Marine Engine Standards	Y	Y	Implemented						N	N	
Large gasoline Engine Standards	Y	Y	Implemented						N	N	
Ride sharing/commuter connections	N	Y	Implemented	0.3 kg/d	0.001%	0.3 kg/d	0.001%	0.01%	N	N	
Transit programs	N	Y	Implemented	7.4 kg/d	0.031%	6.4 kg/d	0.022%	0.17%	N	N	
Park and Ride lots	N	Y	Implemented	1.8 kg/d	0.007%	1.8 kg/d	0.006%	0.04%	N	N	
Telecommuting	N	Y	Implemented	3.1 kg/d	0.013%	3.3 kg/d	0.012%	0.08%	N	N	
Ozone action days	N	Y	by July 2005						N	N	
Public education outreach	N	Y	by June 2005						N	N	
E-gov/e-commerce enhancement	N	Y	by Dec. 2005	1.6 kg/d	0.007%	0.3 kg/d	0.001%	0.02%	N	N	
New jobs tax credit	N	Y	Implemented	1.6 kg/d	0.007%	1.9 kg/d	0.006%	0.04%	N	N	
Growth management program	N	Y	Implemented	13.2 kg/d	0.055%	15.4 kg/d	0.054%	0.35%	N	N	
Signal system enhancements	N	Y	FY 2004	10.2 kg/d	0.042%	3.1 kg/d	0.011%	0.16%	N	N	
Incident Management/Intelligent Transportation System	N	Y	Implemented	17.6 kg/d	0.073%	8.0 kg/d	0.028%	0.31%	N	N	
On-road vehicle replacement	N	Y	End of 2005	1.5 kg/d	0.006%	13.7 kg/d	0.048%	0.19%	N	N	
Vehicle Emissions Inspection Program	Y	Y	Implemented	480.8 kg/d	1.993%	562.5 kg/d	1.961%	12.75%	Y	Y	12.75%
OTC- consumer products	Y	Y	Implemented	108.9 kg/d	0.451%	0.0 kg/d	0.000%	1.33%	Y	Y	1.33%
OTC-architectural and industrial maintenance	Y	Y	Implemented	92.2 kg/d	0.382%	0.0 kg/d	0.000%	1.13%	Y	Y	1.13%
OTC-portable fuel containers	Y	Y	Implemented	54.4 kg/d	0.226%	0.0 kg/d	0.000%	0.67%	N	N	
OTC-low emissions paint	Y	Y	Implemented	26.3 kg/d	0.109%	0.0 kg/d	0.000%	0.32%	Y	Y	0.32%
Off-road vehicle replacements	Y	Y	Feb. 2002; Jan. 2004						N	N	
RACT Controls -- Post 1999 inventory RACT	Y	Y	Implemented	0.0 kg/d	0.000%	1,312.3 kg/d	4.576%	16.04%	N	N	
TOTALS	Y = 12 of 24 CM N = 12 of 24 CM	Y = 24 of 24 CM N = 0 of 24 CM		1,791.0 kg/d 720.6 t/yr	7.425%	6,392.3 kg/d 2,571.9 t/yr	22.287%	100.00%	Y = 6 of 24 CM N = 18 of 24 CM	Y = 6 of 24 CM N = 18 of 24 CM	81.92%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-19: Control Measure Emission Reductions for Austin, Texas

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	1,787.2 kg/d	1.302%	76,865.8 kg/d	58.181%	78.43%	Y	Y	78.43%
I & M Onboard Diagnostics & Low Income Repair Program	N	Y	by Dec. 31, 2005	3,474.5 kg/d	2.531%	2,921.1 kg/d	2.211%	6.38%	Y	N	
Heavy-duty diesel Idling restrictions (April 1 to October 31).	N	Y	by Dec. 31, 2005	0.0 kg/d	0.000%	607.8 kg/d	0.460%	0.61%	Y	N	
Portable Fuel Container Rule	Y	Y	by Dec. 31, 2004	807.4 kg/d	0.588%	0.0 kg/d	0.000%	0.81%	Y	Y	0.81%
Reduced Stage I vapor recovery exemption level from 125k gal/mo to 25k gal/mo	N	Y	by Dec. 31, 2005	4,427.1 kg/d	3.225%	0.0 kg/d	0.000%	4.41%	Y	N	
Emission Reduction Program-- financial incentives to retrofit or replace on & nonroad diesel engines	N	Y	by Dec. 31, 2005	0.0 kg/d	0.000%	1,814.4 kg/d	1.373%	1.81%	Y	N	
Degreasing controls	N	Y	by Dec. 31, 2005	5,034.9 kg/d	3.668%	0.0 kg/d	0.000%	5.02%	Y	N	
Cutback Asphalt	N	Y	by Dec. 31, 2005	934.4 kg/d	0.681%	0.0 kg/d	0.000%	0.93%	Y	N	
Energy efficiency / Renewable energy projects--TCEQ	N	Y	On-going						N	N	
Power Plant Reductions--enforceable commitments by area power plants	N	N	by Dec. 31, 2006						N	N	
Low emission diesel for fleets	Y	Y	On-going						N	N	
Transportation emission reduction measures (TERMs)	N	Y	On-going	753.0 kg/d	0.549%	653.2 kg/d	0.494%	1.40%	Y	N	
Clean Air Partners Program (CLEAN AIR Force of Central TX) the area.	N	Y	Ongoing						N	N	
Access management regulations or guidelines for new or re-development emissions.	N	Y	On-going						N	N	
Alternate commute infrastructure requirements	N	Y	On-going						N	N	
Reduce use of drive-through lanes on ozone action days	N	Y	On-going						N	N	
Expedited permitting for mixed use, transit-oriented or in-fill-development	N	Y	On-going						N	N	
Airport Clean Air Plan--electric or alternative fuels for airport ground service equipment and shuttle buses	N	Y	On-going						N	N	
Low VOC striping material--require use of reformulated striping material products	N	Y	On-going						N	N	
Open burning restrictions during peak ozone season.	N	Y	On-going						N	N	
Tree planting program using low VOC-emitting trees	N	Y	On-going						N	N	

Table B-19: Control Measure Emission Reductions for Austin, Texas

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Local commitment to State's 5% per year energy usage reduction program	N	Y	On-going						N	N	
Shift electric load profile to nighttime period	N	Y	On-going						N	N	
Environmental dispatch of power plants	N	Y	On-going						N	N	
Incentives for purchase of low emission vehicles	N	Y	On-going						N	N	
Adopt a school bus replacement program	N	Y	On-going			198.8 kg/d	0.151%	0.20%	N	N	
Increased enforcement of speed limits and smoking vehicle restrictions.	N	Y	On-going						N	N	
Business evaluation of fleet usage	N	Y	On-going						N	N	
Commute solutions programs-compressed work week; carpool/alternative transportation incentives; flexible work schedule; transit pass subsidized by employer, teleworking, etc	N	Y	On-going						N	N	
Offer employees direct deposit to reduce vehicle use	N	Y	On-going						N	N	
Provide e-Government services to reduce VMT	N	Y	On-going						N	N	
Fueling vehicles in evening	N	Y	On-going						N	N	
Urban Heat Island/Cool cities program	N	Y	On-going						N	N	
Expand and quantify ongoing resource conservation programs	N	Y	On-going						N	N	
Electric utilities develop customer incentives for installation of energy efficient appliances / technologies.	N	Y	On-going						N	N	
Construction-related emissions on ozone action days clauses in public contracts	N	Y	On-going						N	N	
Ensure emission reductions in SEPs, BEPs, and similar agreements	N	Y	On-going						N	N	
Ozone action day education program	N	Y	On-going						N	N	

Table B-19: Control Measure Emission Reductions for Austin, Texas

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Ozone Action Day specific reduction measures program	N	Y	On-going						N	N	
Education program to delay landscaping work on high ozone days.	N	Y	On-going						N	N	
Residential electric lawnmower exchange program	N	Y	1997, 2002 & 2003						N	N	
State Agency Voluntary Commute Reduction Projects commuting.	N	Y	Voluntary						N	N	
TOTALS	Y = 3 of 42 CM N = 39 of 42 CM	Y = 41 of 42 CM N = 1 of 42 CM		17,218.4 kg/d 6,927.7 t/yr	12.543%	83,061.1 kg/d 33,419.1 t/yr	62.871%	100.00%	Y = 9 of 42 CM N = 33 of 42 CM	Y = 2 of 42 CM N = 40 of 42 CM	79.24%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-20: Control Measure Emission Reductions for Berkeley-Charleston-Dorchester, South Carolina

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Appoint Ozone Action Coordinator	N	Y	2003						N	N	
Add ozone alert to county website	N	Y	2003						N	N	
Expand electronic transactions	N	Y	On-going						N	N	
Develop, implement ozone public education plan	N	Y	Begin FY 2004						N	N	
Expand use of hybrid cars	N	Y	FY 2005						N	N	
Use right size - county fleet	N	Y	FY 2005						N	N	
Include fuel efficiency/emission ratings	N	Y	FY 2005						N	N	
Purchase vehicles/light trucks to meet new standards	N	Y	On-going						N	N	
Purchase heavy duty diesel trucks to meet new standards	N	Y	On-going						N	N	
Convert to use of low-sulfur gasoline	N	Y	On-going						N	N	
Consider pilot test for county fleets	N	Y	FY 2005						N	N	
Best practices for fueling	N	Y	FY 2004						N	N	
Land use plan-develop mass transit	N	Y	On-going						N	N	
Limit emissions from counties small engines	N	Y	Over 5 yrs						N	N	
Ask garages to limit idling	N	Y	FY 2004						N	N	
Energy conservation at county bldgs	N	Y	FY 2004						N	N	
Expand flexible hrs-county employees	N	Y	FY 2004						N	N	
Encourage walking, biking, car pooling	N	Y	FY 2005						N	N	
Form regional stakeholders group	N	Y	FY 2004						N	N	
Remain current w/stakeholders	N	Y	On-going						N	N	
Support programs to reduce ozone for SCDOT	N	Y	On-going						N	N	
Set the example-telecommuting; carpooling; flex schedules; alternate fuel vehicles	N	Y	On-going						N	N	
Educational programs	N	N	TBD						N	N	
Schools-add sidewalks, increase bus usage; restrict vehicle idle times	N	N	TBD						N	N	
Ozone conditions-TV	N	Y	May 2004						N	N	
Educate public - festivals, lecturer, brochure	N	N	TBD						N	N	
Planning for future green spaces	N	Y	On-going						N	N	
Cluster development, Smart Growth, mass transit	N	Y	On-going						N	N	
Conserve energy in county property	N	Y	June 2003						N	N	
Designate Ozone Action Coordinator	N	Y	March 2003						N	N	
Zoning ordinance-landscape buffers	N	Y	Sep. 2000						N	N	
Implement Greenspace initiative	N	Y	Sep. 2000						N	N	

Table B-20: Control Measure Emission Reductions for Berkeley-Charleston-Dorchester, South Carolina

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Encourage development of non-polluting industries	N	Y	On-going						N	N	
Encourage recycling goods	N	Y	On-going						N	N	
Increase focus-composting	N	Y	On-going						N	N	
Install passive gas vents-landfill	N	Y	Prior to 2004						N	N	
Purchase 2 alternative fuel vehicles for Sheriff Dept	N	Y	February 2004						N	N	
Best management practices-engines	N	Y	On-going						N	N	
Staggered work schedule	N	Y	On-going						N	N	
TOTALS	Y = 0 of 39 CM N = 39 of 39 CM	Y = 36 of 39 CM N = 3 of 39 CM		0.0 kg/d 0.0 t/yr	0.000%	0.0 kg/d 0.0 t/yr	0.000%	0.00%	Y = 0 of 39 CM N = 39 of 39 CM	Y = 0 of 39 CM N = 39 of 39 CM	0.00%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-21: Control Measure Emission Reductions for Mountain Area of Western North Carolina (Asheville)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	5,443.1 kg/d	13.564%	42,909.8 kg/d	69.295%	96.04%	Y	Y	96.04%
Open burning ban -ozone action days	Y	Y	June 2004	453.6 kg/d	1.130%	362.9 kg/d	0.586%	1.62%	Y	Y	1.62%
Expand vehicle I & M	Y	Y	July 2005	544.3 kg/d	1.356%	635.0 kg/d	1.026%	2.34%	Y	Y	2.34%
TOTALS	Y = 3 of 3 CM N = 0 of 3 CM	Y = 3 of 3 CM N = 0 of 3 CM		6,441.0 kg/d 2,591.5 t/yr	16.050%	43,907.7 kg/d 17,666.0 t/yr	70.906%	100.00%	Y = 3 of 3 CM N = 0 of 3 CM	Y = 3 of 3 CM N = 0 of 3 CM	100.00%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-22: Control Measure Emission Reductions for Oklahoma City, Oklahoma

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	4,753.7 kg/d	2.779%	21,918.3 kg/d	13.917%	99.60%	Y	Y	99.60%
Transportation system improvements - intersection improvement, signal modification/interconnection, continuous left turn lanes	N	Y	2004-2005	54.4 kg/d	0.032%	35.6 kg/d	0.023%	0.34%	Y	N	
Bike/pedestrian facilities	N	Y	2005	NQ		NQ			N	N	
Intelligent Transportation Systems Projects	N	Y	2004-2005	16.1 kg/d	0.009%			0.06%	N	N	
TOTALS	Y = 1 of 4 CM N = 3 of 4 CM	Y = 4 of 4 CM N = 0 of 4 CM		4,824.2 kg/d 1,941.0 t/yr	2.821%	21,953.9 kg/d 8,833.0 t/yr	13.940%	100.00%	Y = 2 of 4 CM N = 2 of 4 CM	Y = 1 of 4 CM N = 3 of 4 CM	99.60%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-23: Control Measure Emission Reductions for Lower Savannah-Augusta, South Carolina-Georgia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Air Quality Contact-ozone education/outreach	N	Y	March 2003						N	N	
Stage I Vapor Recovery (GA)	Y	Y	Dec. 2005	1,460.6 kg/d	1.139%			31.20%	Y	Y	31.20%
Delay/reschedule mowing on ozone action days	N	Y	July 2003						N	N	
Delay/reschedule landscaping activities on ozone action days	N	Y	July 2003						N	N	
Don't top off fuel tanks	N	Y	July 2003						N	N	
Turn off lights/computers	N	Y	July 2003						N	N	
Restrict painting-ozone action days	N	Y	July 2003						N	N	
Promote employee awareness of ozone issues	N	Y	July 2003						N	N	
Change work schedule	N	Y	July 2003						N	N	
Seek information on alternative fuels	N	N	TBD						N	N	
Reduce idling especially during high ozone days	N	Y	2003						N	N	
Stricter controls on illegal burning	N	Y	2003						N	N	
Replace vehicles with latest emission reduction vehicles	N	N	TBD						N	N	
Community education	N	Y	2003 / On-going						N	N	
Switch vehicles to bio-diesel	N	Y	2002						N	N	
Low-sulfur Type II fuels in all vehicles	N	Y	July 2003						N	N	
Promote Early Action Plan	N	Y	July 2003						N	N	
Commuter Choice Program	N	Y	May 2003						N	N	
Install Intelligent Transportation System equipment along major routes	N	N	Post 2007						N	N	
Revise ordinances to promote bike/pedestrian	N	Y	June 2003						N	N	
Establish minimum tree planting requirements	N	Y	June 2003						N	N	
Ban or limit open burning (SC local)	N	Y	Implemented						N	N	
Encourage carpool to lunch	N	Y	2003						N	N	
Install workplace occupancy sensors -reduce energy	N	Y	2003-2004						N	N	
Use reflective paint to reduce energy consumption	N	Y	2003-2004						N	N	
Purchase Energy Star products	N	Y	2003						N	N	
Stakeholder development	N	Y	June 2003						N	N	
Public education program	N	Y	July 2003						N	N	
Purchase test alt fuel vehicles	N	Y	June 2004						N	N	
Monitor/reduce engine idling	N	Y	June 2004						N	N	
Open burning ban -ozone season (GA)	N	Y	May 2005	1,587.6 kg/d	1.238%	644.1 kg/d	0.513%	47.67%	Y	N	
Voluntary smog alerts	N	Y	July 2004						N	N	

Table B-23: Control Measure Emission Reductions for Lower Savannah-Augusta, South Carolina-Georgia

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Stage I Vapor Recovery (SC)	Y	Y	Dec. 2005	988.8 kg/d	0.771%			21.12%	N	N	
Maintain vehicles at peak efficiency and replaced with more efficient	N	Y	On-going						N	N	
Reinforce prohibit idling when not in use	N	Y	On-going						N	N	
Promote use of alternative fuel vehicles	N	Y	Dec. 2004						N	N	
Protect natural areas; minimize use of motorized vehicles; pesticides	N	Y	On-going						N	N	
Enforce existing Tree Ordinance-developments	N	Y	On-going						N	N	
Increase bike and pedestrian routes	N	Y	On-going						N	N	
Community education	N	Y	On-going						N	N	
Enforce existing open burning restrictions (GA local)	N	Y	On-going						N	N	
Support Long Range Transportation Plan	N	Y	On-going						N	N	
Support initiatives-rural public transportation	N	Y	On-going						N	N	
Incorporate Early Action Plan-municipal plans	N	Y	On-going						N	N	
TOTALS	Y = 2 of 44 CM N = 42 of 44 CM	Y = 40 of 44 CM N = 4 of 44 CM		4,037.0 kg/d 1,624.3 t/yr	3.149%	644.1 kg/d 259.2 t/yr	0.513%	100.00%	Y = 2 of 44 CM N = 42 of 44 CM	Y = 1 of 44 CM N = 43 of 44 CM	31.20%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-24: Control Measure Emission Reductions for Tulsa, Oklahoma

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Federal control measures	Y	Y	Before Dec 31, 2005	9,870.2 kg/d	5.951%	50,784.2 kg/d	26.209%	96.20%	Y	Y	96.20%
Transportation Emission Reduction Strategy - roadway expansion and intersection improvement projects	N	Y	Dec. 31, 2005	18.1 kg/d	0.011%	2,376.8 kg/d	1.227%	3.80%	Y	N	
TOTALS	Y = 1 of 2 CM N = 1 of 2 CM	Y = 2 of 2 CM N = 0 of 2 CM		9,888.3 kg/d 3,978.5 t/yr	5.962%	53,161.0 kg/d 21,389.0 t/yr	27.435%	100.00%	Y = 2 of 2 CM N = 0 of 2 CM	Y = 1 of 2 CM N = 1 of 2 CM	96.20%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-25: Control Measure Emission Reductions for South Carolina (Statewide)

Control Measure Implementation				Emission Reductions					Model Demonstration		
Control Measure Description	State or National Measure (Y/N)	Implemented by December 2005 (Y/N)	Implementation Date	VOC Reduction		NOx Reduction		% of Total Quantified Emissions Reductions (NOx & VOC)	Measure Modeled (Y/N)	Of Modeled Measures, State or National? (Y/N)	% of Attainment Demo Emissions Reductions (NOx & VOC)
				Amount of Reduction	% of EAC Area Total VOC Emissions	Amount of Reduction	% of EAC Area Total NOx Emissions				
Ozone forecast/outreach, education	N	N							N	N	
Open Burning-ban household trash burning	Y	Y	2005	1,734.8 kg/d	0.314%	365.4 kg/d	0.068%	0.76%	N	N	
SC NOx Control Regulation - new sources	Y	Y	2005			7,240.1 kg/d	1.356%	2.63%	N	N	
Assist local areas in determining emission reductions	Y	N							N	N	
Clean Air Initiatives for Governmental Entities	Y	Y	April 2005						N	N	
Smart highways	Y	Y	2005						N	N	
NOx reduction-large facilities	Y	Y	April 2005			31,068.0 kg/d	5.821%	11.28%	N	N	
Appalachian Area Local Control Measure Reductions	N	Y	By Dec 31, 2005	37,927.7 kg/d	6.864%	91,317.0 kg/d	17.109%	46.93%	N	N	
Central Midlands Local Control Measure Reductions	N	Y	By Dec 31, 2005	22,322.8 kg/d	4.040%	78,735.7 kg/d	14.751%	36.70%	N	N	
Charleston Area Local Control Measure Reductions	N	Y	By Dec 31, 2005	0.0 kg/d	0.000%	0.0 kg/d	0.000%	0.00%	N	N	
Lower Savannah Local Control Measure Reductions	N	Y	By Dec 31, 2005	4,037.0 kg/d	0.731%	644.1 kg/d	0.121%	1.70%	N	N	
TOTALS	Y = 6 of 11 CM N = 5 of 11 CM	Y = 9 of 11 CM N = 2 of 11 CM		66,022.3 kg/d 26,563.7 t/yr	11.948%	209,370.1 kg/d 84,238.7 t/yr	39.226%	100.00%	Y = 0 of 11 CM N = 11 of 11 CM	Y = 0 of 11 CM N = 11 of 11 CM	0.00%

Definition assumptions for measures:

- State measure: measure adopted by states that applies in more than area in a state
- National measure: measure adopted by EPA that applies nationally or in a sub region
- Local measure: measures adopted by a local unit of government for the area or by the state for the specific area

Table B-26: Comparison of EAC NO_x and VOC Emissions Reductions to the 2002 Emissions for the 20 EAC Program Areas, Emissions for the States in Which They Are Located, and the NO_x SIP Call Emission Reductions in Those States

EAC Area Description	NOx Emissions Reductions and Base Year Inventory (tons/year)									VOC Emissions Reductions and Base Year Inventory (tons/year)								
	EAC Area Emission Reductions			2002 NOx Emissions Inventory						EAC Area Emission Reductions			2002 VOC Emissions Inventory					
	National & State Measures	Local Measures	Total	State-wide Emissions			EAC Area Emissions			2000-2006 NOx SIP Call Reductions			National & State Measures	Local Measures	Total	State-wide Emissions			EAC Area Emissions		
Nonattainment-Deferred EAC Program Areas																					
Berkeley and Jefferson Counties, WV (Eastern Panhandle EAC)	694	774	1,467	382,514	0.2%	0.2%	0.4%	11,627	6.0%	6.7%	12.6%	80,346	0.9%	1.0%	1.8%	146	776	922	129,882	0.1%	0.6%	0.7%	6,982	2.1%	11.1%	13.2%
Chattanooga, TN-GA (Chattanooga Area EAC)	9,473	539	10,012	1,221,179	0.8%	0.0%	0.8%	30,816	30.7%	1.7%	32.5%	45,717	20.7%	1.2%	21.9%	8,566	1,253	9,819	1,076,957	0.8%	0.1%	0.9%	33,654	25.5%	3.7%	29.2%
Columbia, SC (Central Midlands EAC)	26,280	5,398	31,679	355,640	7.4%	1.5%	8.9%	45,888	57.3%	11.8%	69.0%	21,298	123.4%	25.3%	148.7%	8,979	2	8,981	386,585	2.3%	0.0%	2.3%	51,232	17.5%	0.0%	17.5%
Denver-Boulder-Greeley-Ft Collins-Love, CO (Denver Area EAC)	21,535	0	21,535	319,555	6.7%	0.0%	6.7%	147,563	14.6%	0.0%	14.6%	NA				38,800	0	38,800	528,877	7.3%	0.0%	7.3%	191,449	20.3%	0.0%	20.3%
Fayetteville, NC (Fayetteville Area EAC)	3,723	9	3,732	608,616	0.6%	0.0%	0.6%	11,233	33.1%	0.1%	33.2%	42,695	8.7%	0.0%	8.7%	2,847	246	3,093	586,759	0.5%	0.0%	0.5%	14,190	20.1%	1.7%	21.8%
Frederick County, VA (Northern Shenandoah Valley EAC)	2,085	197	2,282	513,247	0.4%	0.0%	0.4%	7,773	26.8%	2.5%	29.4%	19,552	10.7%	1.0%	11.7%	1,855	267	2,122	442,588	0.4%	0.1%	0.5%	10,442	17.8%	2.6%	20.3%
Greensboro-Winston Salem-High Point, NC (Triad Area EAC)	148,039	480	148,518	608,616	24.3%	0.1%	24.4%	123,245	120.1%	0.4%	120.5%	42,695	346.7%	1.1%	347.9%	15,987	523	16,510	586,759	2.7%	0.1%	2.8%	104,193	15.3%	0.5%	15.8%
Greenville-Spartanburg-Anderson, SC (Appalachian Area EAC)	24,528	12,213	36,741	355,640	6.9%	3.4%	10.3%	53,594	45.8%	22.8%	68.6%	21,298	115.2%	57.3%	172.5%	15,257	2	15,259	386,585	3.95%	0.00%	3.95%	89,760	17.00%	0.00%	17.00%
Hickory-Morganton-Lenoir, NC (Unifour Area EAC)	50,881	4	50,885	608,616	8.4%	0.0%	8.4%	33,059	153.9%	0.0%	153.9%	42,695	119.2%	0.0%	119.2%	5,147	5	5,151	586,759	3.95%	0.00%	3.95%	24,962	17.00%	0.00%	17.00%
Johnson City-Kingsport-Bristol, TN (Tri-Cities Area EAC)	4,516	94	4,610	570,102	0.8%	0.0%	0.8%	52,289	8.6%	0.2%	8.8%	45,717	9.9%	0.2%	10.1%	7,541	30	7,570	436,716	1.7%	0.0%	1.7%	44,391	17.0%	0.1%	17.1%
Nashville, TN (Nashville Area EAC)	18,833	822	19,655	570,102	3.3%	0.1%	3.4%	88,503	21.3%	0.9%	22.2%	45,717	41.2%	1.8%	43.0%	15,956	476	16,432	436,716	3.7%	0.1%	3.8%	68,905	23.2%	0.7%	23.8%
Roanoke, VA (Roanoke Area EAC)	5,693	183	5,876	513,247	1.1%	0.0%	1.1%	16,890	33.7%	1.1%	34.8%	19,552	29.1%	0.9%	30.1%	5,028	68	5,096	442,588	1.1%	0.0%	1.2%	16,985	29.6%	0.4%	30.0%

Table B-26: Comparison of EAC NO_x and VOC Emissions Reductions to the 2002 Emissions for the 20 EAC Program Areas, Emissions for the States in Which They Are Located, and the NO_x SIP Call Emission Reductions in Those States

EAC Area Description	NOx Emissions Reductions and Base Year Inventory (tons/year)										VOC Emissions Reductions and Base Year Inventory (tons/year)								
	EAC Area Emission Reductions			2002 NOx Emissions Inventory						2000-2006 NOx SIP Call Reductions	EAC Area Emission Reductions			2002 VOC Emissions Inventory					
	National & State Measures	Local Measures	Total	State-wide Emissions			EAC Area Emissions				National & State Measures	Local Measures	Total	State-wide Emissions			EAC Area Emissions		
San Antonio, TX (San Antonio Area EAC)	22,995	1,005	24,000	1,894,105			81,696			NA	11,921	2,500	14,420	1,349,140			73,729		
				1.2%	**0.1%**	**1.3%**	**28.1%**	**1.2%**	**29.4%**					**0.9%**	**0.2%**	**1.1%**	**16.2%**	**3.4%**	**19.6%**
Washington County , MD (Hagerstown) (Washington Co. EAC)	2,550	22	2,572	297,586			11,540			10,474	697	23	721	261,351			9,705		
				0.9%	**0.0%**	**0.9%**	**22.1%**	**0.2%**	**22.3%**	**24.3%**	**0.2%**	**24.6%**		**0.3%**	**0.0%**	**0.3%**	**7.2%**	**0.2%**	**7.4%**
Attainment EAC Program Areas																			
Austin, TX (Austin Area EAC)	30,926	2,493	33,419	1.894.105			53.155			NA	1,044	5,884	6,928	1.349.140			55.232		
				1.6%	**0.1%**	**1.8%**	**58.2%**	**4.7%**	**62.9%**					**0.1%**	**0.4%**	**0.5%**	**1.9%**	**10.7%**	**12.5%**
Berkeley-Charleston-Dorchester, SC (Charleston Area EAC)	0	0	0	355,640			81,670			21,298	0	0	0	386,585			49,201		
				0.0%	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Asheville, NC (Mountain Area of Western NC EAC)	17,666	0	17,666	608,616			24,915			42,695	2,592	0	2,592	586,759			16,146		
				2.9%	**0.0%**	**2.9%**	**70.9%**	**0.0%**	**70.9%**	**41.4%**	**0.0%**	**41.4%**		**0.4%**	**0.0%**	**0.4%**	**16.1%**	**0.0%**	**16.1%**
Oklahoma City, OK (Central Area EAC)	8,819	14	8,833	448,240			63,365			NA	1,913	28	1,941	363,218			68,813		
				2.0%	**0.0%**	**2.0%**	**13.9%**	**0.0%**	**13.9%**					**0.5%**	**0.0%**	**0.5%**	**2.8%**	**0.0%**	**2.8%**
Savannah-Augusta, SC-GA (Lower Savannah-Augusta Area EAC)	0	259	259	1,006,717			50,488			21,298	986	639	1,624	1,026,826			51,576		
				0.0%	**0.0%**	**0.0%**	**0.0%**	**0.5%**	**0.5%**	**0.0%**	**1.2%**	**1.2%**		**0.1%**	**0.1%**	**0.2%**	**1.9%**	**1.2%**	**3.1%**
Tulsa, OK (Tulsa Area EAC)	20,433	956	21,389	448.240			77.961			NA	3,971	7	3,979	363.218			66.727		
				4.6%	**0.2%**	**4.8%**	**26.2%**	**1.2%**	**27.4%**					**1.1%**	**0.0%**	**1.1%**	**6.0%**	**0.0%**	**6.0%**
South Carolina (Statewide)	15,560	68,679	84,239	355,640			214,751			21,298	698	25,866	26,564	386,585			222,327		
				4.4%	**19.3%**	**23.7%**	**7.2%**	**32.0%**	**39.2%**	**73.1%**	**322.5%**	**395.5%**		**0.2%**	**6.7%**	**6.9%**	**0.3%**	**11.6%**	**11.9%**

Sources: 2002 National Emissions Inventory, EAC SIPs, Table 3 of http://www.epa.gov/airmarkt/progress/docs/2006-NBP-Report.pdf

Table B-27: Population Change from 2002 to 2006 in 14 Nonattainment-Deferred EAC Program Areas

Geographic Area	Population Estimates		Percent Change 2002 to 2006
	July 1, 2002	July 1, 2006	
United States	287,888,021	298,754,819	4%
South	103,188,427	108,894,582	6%
West	65,476,021	69,141,582	6%
West Virginia	1,804,146	1,818,470	1%
West Virginia (rest of state)	1,677,789	1,670,493	0%
Berkeley and Jefferson Counties, West Virginia	126,357	147,977	17%
Georgia	8,597,927	9,363,941	9%
Georgia (rest of state)	8,479,304	9,237,319	9%
Tennessee	5,788,333	6,038,803	4%
Tennessee (rest of state)	5,440,181	5,686,258	5%
Chattanooga, Tennessee-Georgia (Georgia portion)	118,623	126,622	7%
Chattanooga, Tennessee-Georgia (Tennessee portion)	348,152	352,545	1%
Chattanooga, Tennessee-Georgia	466,775	479,167	3%
South Carolina	4,101,122	4,321,249	5%
South Carolina (rest of state)	3,489,190	3,671,291	5%
Columbia, South Carolina (Central Midlands Area)	611,932	649,958	6%
Colorado	4,500,122	4,753,377	6%
Colorado (rest of state)	1,529,450	1,603,723	5%
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	2,970,672	3,149,654	6%
North Carolina	8,313,494	8,856,505	7%
North Carolina (rest of state)	8,009,400	8,557,445	7%
Fayetteville, North Carolina (Cumberland County)	304,094	299,060	-2%
Virginia	7,285,707	7,642,884	5%

Table B-27: Population Change from 2002 to 2006 in 14 Nonattainment-Deferred EAC Program Areas

Geographic Area	Population Estimates		Percent Change 2002 to 2006
	July 1, 2002	July 1, 2006	
Virginia (rest of state)	7,198,425	7,546,432	5%
Frederick Co, Virginia	87,282	96,452	11%
North Carolina	8,313,494	8,856,505	7%
North Carolina (rest of state)	6,841,625	7,319,383	7%
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	1,471,869	1,537,122	4%
South Carolina	4,101,122	4,321,249	5%
South Carolina (rest of state)	3,047,632	3,216,134	6%
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	1,053,490	1,105,115	5%
North Carolina	8,313,494	8,856,505	7%
North Carolina (rest of state)	7,964,526	8,496,649	7%
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	348,968	359,856	3%
Tennessee	5,788,333	6,038,803	4%
Tennessee (rest of state)	5,379,476	5,619,535	4%
Johnson City-Kingsport-Bristol, Tennessee	408,857	419,268	3%
Tennessee	5,788,333	6,038,803	4%
Tennessee (rest of state)	4,518,728	4,669,256	3%
Nashville, Tennessee	1,269,605	1,369,547	8%
Virginia	7,285,707	7,642,884	5%
Virginia (rest of state)	7,050,213	7,403,797	5%
Roanoke, Virginia	235,494	239,087	2%
Texas	21,762,430	23,507,783	8%

Table B-27: Population Change from 2002 to 2006 in 14 Nonattainment-Deferred EAC Program Areas

Geographic Area	Population Estimates		Percent Change 2002 to 2006
	July 1, 2002	July 1, 2006	
Texas (rest of state)	20,107,591	21,703,771	8%
San Antonio, Texas	1,654,839	1,804,012	9%
Maryland	5,441,349	5,615,727	3%
Maryland (rest of state)	5,306,649	5,471,979	3%
Washington Co (Hagerstown), Maryland	134,700	143,748	7%

Source: U.S.Census Bureau, Green Book
For partial counties, the population estimates are for the entire county, while the EAC Program Area includes only part of the county. This includes the Columbia, South Carolina (Central Midlands Area); Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado; and Hickory-Morganton-Lenoir, North Carolina (Unifour Area) areas.

Table B-28: Population Change from 2002 to 2006 in 6 Attainment EAC Program Areas

Geographic Area	Population Estimates		Percent Change 2001 to 2006
	July 1, 2002	July 1, 2006	
United States	287,888,021	298,754,819	4%
South	103,188,427	108,894,582	6%
West	65,476,021	69,141,582	6%
Texas	21,762,430	23,507,783	8%
Texas (rest of state)	20,414,966	21,994,218	8%
Austin, Texas	1,347,464	1,513,565	12%
South Carolina	4,101,122	4,321,249	5%
South Carolina (rest of state)	3,538,543	3,718,071	5%
Berkeley-Charleston-Dorchester, South Carolina	562,579	603,178	7%
North Carolina	8,313,494	8,856,505	7%
North Carolina (rest of state)	8,028,063	8,557,529	7%
Mountain Area of Western North Carolina (Asheville)	285,431	298,976	5%
Oklahoma	4,101,122	4,321,249	5%
Oklahoma (rest of state)	2,993,955	3,163,407	6%
Oklahoma City, Oklahoma	1,107,167	1,157,842	5%
Georgia	8,597,927	9,363,941	9%
Georgia (rest of state)	8,305,429	9,062,656	9%
South Carolina	4,101,122	4,321,249	5%
South Carolina (rest of state)	3,798,745	4,013,887	6%
Lower Savannah-Augusta, South Carolina-Georgia (Georgia portion)	302,377	307,362	2%
Lower Savannah-Augusta, South Carolina-Georgia (South Carolina portion)	292,498	301,285	3%
Lower Savannah-Augusta, South Carolina-Georgia	594,875	608,647	2%
Oklahoma	4,101,122	4,321,249	5%

Table B-28: Population Change from 2002 to 2006 in 6 Attainment EAC Program Areas

Geographic Area	Population Estimates		Percent Change 2001 to 2006
	July 1, 2002	July 1, 2006	
Oklahoma (rest of state)	3,281,801	3,480,011	6%
Tulsa, Oklahoma	819,321	841,238	3%

Source: U.S.Census Bureau, Green Book

For partial counties, the population estimates are for the entire county, while the EAC Program Area includes only part of the county. This includes the Mountain Area of Western North Carolina (Asheville) area.

Table B-29: Vehicle Miles Traveled (VMT) Change from 2002 to 2006
In 14 Nonattainment-Deferred EAC Program Areas

Geographic Areas	VMT Estimates		Percent Change 2002 to 2006
	2002	2006	
United States	2,822,279	3,014,116	7%
South	1,120,903	1,225,953	9%
West	585,246	645,007	10%
West Virginia	19,544	20,885	7%
West Virginia (rest of state)	18,264	19,637	8%
Berkeley and Jefferson Counties, West Virginia	1,279	1,248	-2%
Georgia	106,727	113,532	6%
Georgia (rest of state)	106,159	112,927	6%
Tennessee	68,315	70,596	3%
Tennessee (rest of state)	63,907	66,131	3%
Chattanooga, Tennessee-Georgia (Georgia portion)	569	605	6%
Chattanooga, Tennessee-Georgia (Tennessee portion)	4,408	4,465	1%
Chattanooga, Tennessee-Georgia	4,976	5,070	2%
South Carolina	47,074	50,199	7%
South Carolina (rest of state)	39,866	42,397	6%
Columbia, South Carolina (Central Midlands Area)	7,208	7,802	8%
Colorado	43,539	48,641	12%
Colorado (rest of state)	19,458	21,669	11%
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	24,081	26,972	12%
North Carolina	80,200	101,515	27%
North Carolina (rest of state)	77,420	98,539	27%
Fayetteville, North Carolina (Cumberland County)	2,780	2,976	7%

Table B-29: Vehicle Miles Traveled (VMT) Change from 2002 to 2006
In 14 Nonattainment-Deferred EAC Program Areas

Geographic Areas	VMT Estimates		Percent Change 2002 to 2006
	2002	2006	
Virginia	77,396	81,095	5%
West Virginia (rest of state)	76,260	80,084	5%
Frederick Co, Virginia	1,136	1,011	-11%
North Carolina	80,200	101,515	27%
North Carolina (rest of state)	63,849	83,865	31%
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	16,351	17,650	8%
South Carolina	47,074	50,199	7%
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	10,887	11,535	6%
South Carolina (rest of state)	36,187	38,664	7%
North Carolina	80,200	101,515	27%
North Carolina (rest of state)	77,197	97,785	27%
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	3,003	3,730	24%
Tennessee	68,315	70,596	3%
Tennessee (rest of state)	64,428	66,508	3%
Johnson City-Kingsport-Bristol, Tennessee	3,887	4,088	5%
Tennessee	68,315	70,596	3%
Tennessee (rest of state)	52,439	51,493	-2%
Nashville, Tennessee	15,876	19,103	20%
Virginia	77,396	81,095	5%
Virginia (rest of state)	74,909	78,510	5%
Roanoke, Virginia	2,487	2,585	4%
Texas	217,820	238,256	9%

Table B-29: Vehicle Miles Traveled (VMT) Change from 2002 to 2006 In 14 Nonattainment-Deferred EAC Program Areas

Geographic Areas	VMT Estimates		Percent Change 2002 to 2006
	2002	2006	
Texas (rest of state)	202,853	221,891	9%
San Antonio, Texas	14,967	16,365	9%
Maryland	53,758	56,302	5%
Maryland (rest of state)	51,872	54,266	5%
Washington Co (Hagerstown), Maryland	1,886	2,036	8%

Source: The VMT numbers come from the National Emissions Inventory's VMT estimates, which are derived from the Highway Performance Monitoring System (HPMS). It is important to note that they are subject to significant uncertainty that can cause over or underestimates. HPMS was designed to collect statewide data to populate a national database that would be used to: (1) assess the performance and condition of the nationwide transportation system; and, (2) help guide national investment priorities. The sampling techniques were designed for these purposes. They may not be appropriate for estimating small changes in VMT in smaller geographic areas such as the areas included in this study. While the margin of error at the statewide and national level is acceptable for the purposes that HPMS was designed for, it is unclear whether the margin of error at the nonattainment areas scale would render the study inconclusive (see http://www.fhwa.dot.gov/policy/ohpi/hpms/abouthpms.htm).

For partial counties, the VMT estimates are for the entire county, while the EAC Program Area includes only part of the county. This includes the Columbia, South Carolina (Central Midlands Area); Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado and Hickory-Morganton-Lenoir, North Carolina (Unifour Area) areas.

Table B-30: VMT Change From 2002 to 2006 in 6 Attainment EAC Program Areas

Geographic Area	VMT Estimates		Percent Change 2002 to 2006
	2002	2006	
United States	2,822,279	3,014,116	7%
South	1,120,903	1,225,953	9%
West	585,246	645,007	10%
Texas	217,820	238,256	9%
Texas (rest of state)	204,732	223,931	9%
Austin, Texas	13,088	14,325	9%
South Carolina	47,074	50,199	7%
South Carolina (rest of state)	41,425	43,947	6%
Berkeley-Charleston-Dorchester, South Carolina	5,649	6,252	11%
North Carolina	80,200	101,515	27%
North Carolina (rest of state)	77,085	97,509	26%
Mountain Area of Western North Carolina (Asheville)	3,115	4,006	29%
Oklahoma	45,732	48,689	6%
Oklahoma (rest of state)	31,938	34,493	8%
Oklahoma City, Oklahoma	13,793	14,196	3%
Georgia	106,727	113,532	6%
Georgia (rest of state)	103,992	110,483	6%
South Carolina	47,074	50,199	7%
South Carolina (rest of state)	43,020	46,179	7%
Lower Savannah-Augusta, South Carolina-Georgia (Georgia portion)	2,736	3,049	11%
Lower Savannah-Augusta, South Carolina-Georgia (South Carolina portion)	4,054	4,020	-1%
Lower Savannah-Augusta, South Carolina-Georgia	6,790	7,069	4%
Oklahoma	45,732	48,689	6%

Table B-30: VMT Change From 2002 to 2006 in 6 Attainment EAC Program Areas

Geographic Area	VMT Estimates		Percent Change 2002 to 2006
	2002	2006	
Oklahoma (rest of state)	35,093	37,215	6%
Tulsa, Oklahoma	10,639	11,474	8%

Source: The VMT numbers come from the National Emissions Inventory's VMT estimates, which are derived from the Highway Performance Monitoring System (HPMS). It is important to note that they are subject to significant uncertainty that can cause over or underestimates. HPMS was designed to collect statewide data to populate a national database that would be used to: (1) assess the performance and condition of the nationwide transportation system; and, (2) help guide national investment priorities. The sampling techniques were designed for these purposes. They may not be appropriate for estimating small changes in VMT in smaller geographic areas such as the areas included in this study. While the margin of error at the statewide and national level is acceptable for the purposes that HPMS was designed for, it is unclear whether the margin of error at the nonattainment areas scale would render the study inconclusive (see http://www.fhwa.dot.gov/policy/ohpi/hpms/abouthpms.htm).

For partial counties, the VMT estimates are for the entire county, while the EAC Program Area includes only part of the county. This includes the Mountain Area of Western North Carolina (Asheville) area.

Table B-31: EPA Resources for Traditional Approach versus EAC Program

	EPA Full Time Equivalent (FTE)		Number of EPA Federal Register Actions (pages)	Federal Register Cost*
	Regional Offices	Headquarters		
Hypothetical Areas – Traditional Approach				
Estimate for resources required for a typical nonattainment area from State Implementation Plan (SIP) development through redesignation to attainment (about 4.5 years).				
Headquarters	NA	13.05	0	$0
Regions	11.5 to 44.2	NA	28 (715 pages) actions to 46 actions (1,085 pages)	$349,635 to $530,565
Subtotal	11.5 to 44.2	13.05	28 (715 pages) actions to 46 actions (1,085 pages)	$349,635 to $530,565
Resources required for a typical attainment area				
Headquarters	0	0	0	$0
Regions	0	0	0	$0
Subtotal	0	0	0	$0
Total estimate for hypothetical nonattainment and attainment areas	11.5 to 44.2	13.05	28 (715 pages) actions to 46 actions (1,085 pages)	$349,635 to $530,565
EAC Program**				
Estimate for resources includes program startup (about 6 years).				
Headquarters	NA	7.174	11 actions (326 pages)	$159,414
Regions	16.66	NA	44 actions (235 pages)	$114,915
Total for all EAC Program Areas	16.66	7.174	55 actions (561 pages)	$274,329

Source: EPA Headquarters and Regional Office Staff

*Assumes current Federal Register of $489 per page.

**EPA resources expended on the EAC Program were not tracked during EAC Program implementation. Therefore, the resource numbers presented here for the EAC Program are "after the fact" estimates.

Steps for Completing Resource Estimates for Table:

Note: For the traditional approach, assume no resources expended on SIP program for attainment areas.

Step 1: Determine the year 2000 population and classification for the 14 nonattainment-deferred areas that they would have had if they had not become EAC Program areas but instead became traditional nonattainment areas

Step 2: Sort the areas by year 2000 population.

Nonattainment-Deferred EAC Program Area	2000 Population	8-Hour Nonattainment Classification*
Small (<250,000)		
Frederick Co, Virginia	82,794	Subpart 1
Berkeley and Jefferson Counties, West Virginia	118,095	Subpart 1
Washington County, Maryland (Hagerstown)	131,923	Subpart 1
Johnson City-Kingsport-Bristol, Tennessee	206,611	Subpart 1
Roanoke, Virginia	235,932	Subpart 1
Mid size (250,000 to 800,000)		
Fayetteville, North Carolina (Cumberland County)	302,963	Subpart 1
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	309,512	Subpart 1
Chattanooga, Tennessee-Georgia	372,264	Subpart 1
Columbia, South Carolina (Central Midlands Area)	494,518	Subpart 1
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	799,147	Subpart 1
Large (> 800,000)		
Nashville, Tennessee	1,097,810	Subpart 1
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	1,285,879	Marginal
San Antonio, Texas	1,559,975	Subpart 1
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	2,811,580	Subpart 1

*The classification the areas would have had, at least initially, had they not become EAC Program areas and instead pursued the traditional route.

Step 3: Determine what size and classification of traditional area resource estimate needed and list the areas here:

- Small Subpart 1 nonattainment area;
- Mid size Subpart 1 nonattainment area; and
- Large Subpart 1 nonattainment area.

Step 4: Regions 3, 4, 6, and 8 develop estimates of "average" resources (e.g., FTE and Federal Register actions with pages) required for the three types of areas listed in step 3 based on regional experience with other Subpart 1 areas.

- Estimate should encompass SIP development through redesignation to attainment (about 4.5 years);
- Estimate should include all regional resources (e.g., technical and policy/planning staff, regional counsel, management);
- Estimate should be averages based on regional experience with one or more examples of each type of area listed in Step 3; and
- If a region lacks an example to use for one or two of the area types, then no estimate should be submitted for those types except that:
    - Region 6 should use examples of marginal or moderate areas to develop their estimates.

Step 5: Calculate "average," per area resource estimate (of the regional estimates) for each area type for each resource to produce the following:

Area Type	**"Average" Regional Resource Estimates Across The Areas In Each Region That Would Have Had Subpart 1 Areas**
Small Subpart 1 nonattainment areas	Region 3: • FTE: 1.9 • Federal Register Actions: 2 • Federal Register Pages: 59 • Federal Register Cost*: $28,851
Mid size Subpart 1 nonattainment areas	Region 3: • FTE: 1.9 • Federal Register Actions: 2 • Federal Register Pages: 60 • Federal Register Cost*: $29,340 Region 4: • FTE: 0.25 • Federal Register Actions: 4 • Federal Register Pages: 130 • Federal Register Cost*: $63,570

Area Type	"Average" Regional Resource Estimates Across The Areas In Each Region That Would Have Had Subpart 1 Areas
Large Subpart 1 nonattainment areas	Region 4: • FTE: 0.18 • Federal Register Actions: 2 • Federal Register Pages: 30 • Cost*: $14,670 Region 8: • FTE: 6.3 • Federal Register Actions: 4 • Federal Register Pages: 35 • Cost*: $17,115

*Federal Register costs are assumed to be current: $163/column or $489/page at 3 columns per page.

Step 6: Multiply the range of "average" resource estimate for each area type by the number of areas in that type as follows:

- Small Subpart 1 nonattainment area
  - Average FTE resource estimate * 5 nonattainment deferred EAC Program areas = 9.5
  - Average Federal Register action resource estimate * 5 nonattainment deferred EAC Program areas = 10
  - Average Federal Register pages resource estimate * 5 nonattainment deferred EAC Program areas = 295
  - Average Federal Register cost estimate * 5 nonattainment deferred EAC Program areas = $144,255;
- Mid size Subpart 1 nonattainment area
  - Average FTE resource estimate * 5 nonattainment deferred EAC Program areas = 1.25 to 9.5
  - Average Federal Register action resource estimate * 5 nonattainment deferred EAC Program areas = 10 to 20
  - Average Federal Register pages resource estimate * 5 nonattainment deferred EAC Program areas = 300 to 650
  - Average Federal Register cost estimate * 5 nonattainment deferred EAC Program areas = $146,700 to $317,850; and
- Large Subpart 1 nonattainment area
  - Average FTE resource estimate * 4 nonattainment deferred EAC Program areas = 0.72 to 25.2
  - Average Federal Register action resource estimate * 4 nonattainment deferred EAC Program areas = 8 to 16
  - Average Federal Register pages resource estimate * 4 nonattainment deferred EAC Program areas = 120 to 140
  - Average Federal Register cost estimate * 4 nonattainment deferred EAC Program areas = $58,680 to $68,460.

Step 7: Estimate the total EPA regional resources that would have been required had the 14 EAC Program areas been traditional nonattainment areas as follows:

- Total FTE resources: 11.5 to 44.2 = 9.5 (total for small Subpart 1 nonattainment areas) + 1.25 to 9.5 (total for mid size Subpart 1 nonattainment areas) + 0.72 to 25.2 (total large Subpart 1 nonattainment area);
- Total Federal Register actions: 28 to 46 = 10 (total for small Subpart 1 nonattainment areas) + 10 to 20 (total for mid size Subpart 1 nonattainment areas) + 8 to 16 (total for large Subpart 1 nonattainment area);
- Total Federal Register pages: 715 to 1,085 = 295 (total for small Subpart 1 nonattainment areas) + 300 to 600 (total for mid size Subpart 1 nonattainment areas) + 120 to 140 (total for large Subpart 1 nonattainment area); and
- Total Federal Register cost: $349,635 to $530,565 = $144,255 (total for small Subpart 1 nonattainment areas) + $146,700 to $317,850 (total for mid size Subpart 1 nonattainment areas) + $58,680 to 68,460 (total for large Subpart 1 nonattainment area).

Step 8: Estimate the total EPA headquarters resources that would have been required had the 14 EAC Program areas been traditional nonattainment areas as follows:

- 2.9 FTE per year to support SIP development (primarily responding to issues from Regions; does not include development of SIP policy and guidance), including Office of Air Quality Planning and Standards (2.5/year), Office of Transportation and Air Quality (0.2/year) and Office of General Counsel (0.2/year);
- Total FTE resources: 13.05 = 2.9 FTE per year * 4.5 years; and
- No resources required for SIP area-specific Federal Register actions since those are all issued by the regions.

Step 9: Estimate the total EPA resources that would have been required had the 14 EAC Program areas been traditional nonattainment areas as follows:

- Total FTE resources 24.5 to 57.2 = 13.05 (total headquarters FTE resources) + 11.5 to 44.2 (total regional FTE resources);
- Total Federal Register actions 28 to 46 = 0 (total headquarters Federal Register actions) + 28 to 46 (total regional Federal Register actions);
- Total Federal Register pages 715 to 1,085 = 0 (total headquarters Federal Register pages) + 715 to 1,085 (total regional Federal Register pages); and
- Total Federal Register cost: $349,635 to $530,565 = $0 (total headquarters Federal Register cost) + $347,635 to $530,565 (total regional Federal Register cost).

Step 10: Estimate the total EPA resources that were devoted to the EAC Program from the program's start thru April 2008 (about 6 years; excluding this study):

- Total FTE resources 23.8 = 7.174 (total headquarters FTE resources: OAQPS -- 6.244 FTE, OTAQ -- 0.2 FTE, OGC -- 0.73 FTE) + 16.66 (total regional FTE resources: Region 3 -- 5 FTE; Region 4 – 1.36 FTE; Region 6 -- 3.6 FTE; Region 8 -- 6.7 FTE);
- Total Federal Register actions 55 = 11 (total headquarters Federal Register actions: OAQPS -- 11 Federal Register actions) + 44 (total regional Federal Register actions: Region 3 -- 11 Federal Register actions; Region 4 -- 6 Federal Register actions; Region 6 -- 25 Federal Register actions; Region 8 -- 2 Federal Register actions);
- Total Federal Register pages 561 = 326 (total headquarters Federal Register pages: OAQPS-- 326 pages) + 235 (total EPA regional Federal Register pages: Region 3 -- 136 pages; Region 4 -- 37 pages; Region 6 -- 45 pages; Region 8 -- 17 pages); and
- Total Federal Register Cost $274,329 = 561 pages * $489/page (Federal Register costs are assumed to be current: $163/column or $489/page at 3 columns per page. This is to ensure that the comparison with EAC costs is on a consistent basis.).

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
IMPORTANT NOTE: The subpart 1 and 2 requirements presented here are the requirements that EPA interprets as applying to the 14 EAC nonattainment-deferred areas had they not become EAC Program areas but had instead become designated nonattainment areas under the CAA. The list below constitutes only an outline of the general requirements of the CAA. It should not be relied on for regulatory purposes but serves for historical information purposes only. In December 2006, the US Court of Appeals for the DC Circuit issued an opinion that vacated EPA's rule that placed certain 8-hr ozone nonattainment areas under subpart 1 of the CAA (the Court's mandate issued on August 29, 2007). All but one of the EAC areas had design values consistent with the marginal classification under subpart 2 had EPA's rule initially placed them under subpart 2. Most of the subpart 1 requirements in the 3rd column of this table no longer apply to the areas that were originally placed under subpart 1. EPA is currently developing rulemaking to address the requirements for the areas that were originally placed under subpart 1.			
Attainment Dates	Attainment not later than December 31, 2007. Failure to attain by this date will result in the nonattainment designation becoming effective. But if an area failed to achieve milestones, including attaining the 8-hour ozone standard on or before December 31, 2007, the area will have been deemed in violation of the Compact and will have been subject to the full planning requirements under applicable CAA standard SIP processes including requirements defined as part of the EPA's 8-hour implementation rulemaking. Such an area would have been subject to the same requirements and deadlines which would have been effective under the CAA and the EPA's 8-hour designation rulemaking had it not participated in this program, with no preferential delays or exemptions from the EPA.	Attainment is as expeditiously as practicable, but no later than 5 years after nonattainment designation: June 15, 2009 (may extend up to 10 years based on specified considerations)	CAA requirements: Attainment is as expeditiously as practicable, but no later than 3 years from CAA Amendments enactment; 40 Code of Federal Regulations 51.903 (a) requires attainment within 3 years after designation, or by June 15, 2007.
Reasonable Further Requirement	None	"Annual incremental emissions reductions"	None

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
Milestone Compliance Determination	Must include clearly measurable milestones for the development and implementation of the plan. Local areas will assess and report their progress against milestones in a regular, public process, at least every six months starting June 2003 and ending December 2007. Milestones will include, at a minimum: - Completion of emissions inventories and modeling; - Adoption of control strategies that demonstrate attainment; - Completion and adoption of the early action SIP revision; - Attainment not later than December 31, 2007; and - Post-attainment demonstration and plan updates. By June 30, 2006, compact areas must certify progress toward attainment since previous milestone, e. g., continued implementation and progress toward improvement in air quality and emissions reductions.	Not required as such; contingency measures supposed to be implemented upon failure to meet Reasonable Further Progress (RFP)	No specific requirement

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
Attainment demonstration submission	Emission inventories will be used to develop SIP quality modeling episodes that perform within the EPA's accepted margin of accuracy, including a base case and future case on or before December 31, 2007. Therefore, inventories must sufficiently account for projected future growth in ozone precursor emissions, particularly from stationary, non-road, and on-road mobile sources. Local area must carefully document modeling approach, and work will be supported and reviewed by the state and concurrently reviewed by the EPA. Quantifiable emission reduction measures will be integrated into the future case to produce one or more control cases. These control cases will be used to indicate the relative effectiveness of different measures and aid in selecting appropriate measures. Prior to plan implementation the control strategies should be determined based on model results from a control case episode that shows achievement of the 8-hour ozone standard on or before December 31, 2007 through implementation of the control strategies. Communities will continue to develop other episodes as necessary to fully represent the variety of situations that typically contribute to ozone production in the area and to support the plan with the most current information and tools. Other episodes may also indicate necessary revisions to ensure that sufficient emission reduction measures are selected and implemented to continue to achieve target ozone concentration levels. By December 31, 2004, states must submit a SIP consisting of the local plan, including all adopted control measures that demonstrate attainment of the 8-hour ozone National Ambient Air Quality Standard (NAAQS) by December 31, 2007.	Attainment demonstration required. EPA sets date that can be no later than 3 years after designation (due June 15, 2007).	Not required
Nonattainment New Source Review (NSR) and Reasonably Available Control Technology	Not required.	100 tons per year (any needed SIP revision due June 15, 2007)	100 tons per year (any SIP revision due June 15, 2007)

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
(RACT) major source applicability			
Nonattainment NSR offsets	Not required.	New/modified source emissions must be offset at least on a 1 to 1 basis (any SIP revision due June 15, 2007)	New/modified source emissions must be offset at least on a 1.1 to 1 (any SIP revision due June 15, 2007)
Nonattainment NSR permits	Not required.	Permits required (any SIP revision due June 15, 2007)	Construction permits for new or modified major stationary sources pre-1990 permit program corrections (any SIP revision due June 15, 2007)
Reclassification to higher classification	No reclassification requirement.	NA	Required to reclassify to a higher classification if area does not meet attainment date
RACT control for nitrogen oxides (NO_x)	Not required.	None specified	None specified
NO_x control for NSR	Not required.	None specified	Any SIP revision due June 15, 2007

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
Emission inventory	Required using the most current tools available for at least one recent episode in order to support the early action plan. Emission inventories must include: - 1999 or later episode reflective of a typical ozone season exceedance that meets the EPA episode selection guidance to ensure that representative meteorological regimes are considered; - MOBILE6 data with link based Travel Demand Model mobile data in urban areas; - NONROAD model data adjusted for local equipment populations and usage rates; - Area source entered into database when possible on local survey data. Further episode inventories will also be developed over time to fully represent the variety of situations that typically contribute to ozone production in the area and to include the most recent developments. Emission inventories will be compared and analyzed for trends in emission sources over time. By December 31, 2004, states must submit a SIP consisting of the local plan, including all adopted control measures that demonstrate attainment of the 8-hour ozone NAAQS by December 31, 2007.	Required in nonattainment area; no express requirement for updates or emission statements (due by June 15, 2007)	Comprehensive emissions inventory within 2 years of enactment (or designation); update every 3 years (until area attains). Provision for submission to state of annual emissions statements from volatile organic compounds (VOCs) and NO_x stationary sources (due June 15, 2006)
Reasonably Available Control Measures (RACM)/RACT	Not required per se but, after all adopted federal and state or tribal controls that have been or will be implemented by the attainment date of December 31, 2007 are accounted for in the modeling, the local area will adopt additional local controls, as necessary, to demonstrate attainment of the 8-hour standard by December 31, 2007. As an initial matter, by June 16, 2003, the local area will identify and describe the local control measures that will be considered during the local planning process. The June 16, 2003 deadline for describing the control measures under consideration must be met to maintain eligibility in the program. While failure to list a measure at this stage would not preclude its adoption later, it is important to develop a reasonably complete initial list of measures. This will provide the public with clear information on the measures under consideration, will help ensure that interested parties are fully aware of the level of effort and local	General requirement for RACM, including RACT (due by June 15, 2007)*	Pre-1990 RACT fix-up for Control Technique Guidelines (CTGs) and major source RACT

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
	commitment that is necessary, and will demonstrate that the local area is making progress toward meeting the critical March 31, 2004 deadline for adoption of local measures. The resulting local plan must be completed and submitted to the state or tribal leader by March 31, 2004 for inclusion in the SIP. The local plan shall include measures that are specific, quantified, and permanent, and that if approved by EPA, will be federally enforceable SIP revisions. The March 31, 2004 submission also will include specific implementation dates for the adopted local controls, as well as detailed documentation and reporting processes. Controls will be implemented as soon as practicable, but not later than December 31, 2005. Controls will be designed and implemented by the community with full stakeholder participation. All control measures will be incorporated by the state into the SIP and submitted to the EPA for review and approval. In the event that areas wish to add or substitute measures after SIP submittal, plan modifications will be treated as SIP revisions and facilitated by the state. By June 16, 2003, compact areas were required to identify/describe local control measures that are being considered during the planning process and the control measures must be met to maintain program eligibility. By March 31, 2004, the resulting local plan, including control measures, must be completed and submitted to the state by this date for inclusion in the SIP. By December 31, 2005, compact areas must implement the local control measures that have been incorporated into the SIP.		

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
Inspection and maintenance program	Not required.	Nothing specified	Pre-1990 Marginal inspection and maintenance programs, with changes that were required following the 1990 CAA amendments.
Conformity (transportation and general)	Not required.	Required (also required of subpart 2 areas) (conformity applies 1 year after the effective date of designations; transportation conformity requirements for metropolitan areas must be in place by then); conformity determinations for new project approvals that occur after date also due	No additional requirement specified in subpart 2. (Subpart 1 provision applies to all subpart 2 areas)
Consequences of failure to attain	See entry for "Reclassification to higher classification"	EPA to specify additional requirements; up to 10 more years to attain	Area receives a higher classification for failure to attain

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
Maintenance	The plan must include a component to address emissions growth at least 5 years beyond December 31, 2007, ensuring that the area will remain in attainment of the 8-hour standard during that period. This future attainment maintenance analysis may employ one or more of the following or any other appropriate techniques necessary to make such a demonstration: - Modeling analysis showing ozone levels below the 8-hour standard in 2012; - An annual review of growth (especially mobile and stationary source) to ensure control measures and growth assumptions are adequate; - Identification and quantification of federal, state, and/or local measures indicating sufficient reductions to offset growth estimates. The plan must also detail a continuing planning process that includes modeling updates and modeling assumption verification (particularly growth assumptions). Modeling updates and planning processes must consider and evaluate: - all relevant actual new point sources; - impacts from potential new source growth; and - future transportation patterns and their impact on air quality in a manner that is consistent with the most current adopted Long Term Transportation Plan and most current trend and projections of local motor vehicle emissions. If the review of growth demonstrates that adopted control measures are inadequate to address growth in emissions, additional measures will be added to the plan. Local planning processes should prepare for this possibility.	Requirement for maintenance plans (with 2 consecutive 10-year demonstrations of maintenance) for areas requesting redesignation from nonattainment to attainment	No additional specificity
Contingency measures	See entry for "Reclassification to higher classification"	Required for failure to make RFP or attainment	NA

Table B-32: Summary of Requirements for Nonattainment-Deferred EAC 8-Hour Ozone Areas Compared to a Summary of Requirements for Clean Air Act (CAA) Subpart 1 and Subpart 2 Marginal 8-hour Ozone Nonattainment Areas

Element	Early Action Compacts	Subpart 1 Area Requirements	Subpart 2/Marginal Area Requirements
Public Involvement	Public involvement will be conducted in all stages of the planning and implementation process. Public education programs will be used to raise awareness regarding issues, opportunities for involvement in the planning process, implementation of control strategies, and any other issues important to the area. Interested stakeholders will be involved in the planning process as early as possible. Planning meetings will be open to the public, with posted meeting times and locations. Plan drafts will be publicly available, and the drafts process will have sufficient opportunities for comment from all interested stakeholders. Public comment on the proposed final plan will follow the normal SIP revision process as implemented by the state. Semi-annual reports detailing, at a minimum, progress toward milestones, will be publicly presented and publicly available.	Required	Required

*EPA's Phase 2 implementation rule had a two-tier approach for RACT for subpart 1 areas. If an area demonstrated attainment within 5 years after designation, the attainment demonstration was deemed to have met the RACT requirement (i.e., no separate requirement for CTG RACT or major source non-CTG RACT). If the area demonstrated attainment beyond 5 years after designation, then the area had to meet RACT requirements similar to a subpart 2 moderate area, which would have meant CTG RACT and major source non-CTG RACT. However, the DC Circuit Court vacated our placing any area under subpart 1, so that provision of the rule is now on hold pending EPA's publication of a rule that addresses the former subpart 1 areas.

Sources:

1. For EAC requirements: "Protocol For Early Action Compacts Designed To Achieve and Maintain the 8-Hour Ozone Standard," June 19, 2002, http://www.epa.gov/ttn/naaqs/ozone/eac/20020619_eac_protocol.pdf.
2. For subpart 1 and marginal area requirements: June 2, 2003 NPRM 68 Federal Register 32864.

Appendix C: Approach for Calculating National (Federal) Measure Emission Reductions

Introduction

This appendix provides the approach for developing estimates of emission reductions from national (federal) measures. In the 20 areas for which quantitative information was compiled for this study, four areas quantified the emissions reductions from implementation of federal measures that contributed to emission reductions towards attainment: Austin, Texas; Frederick County, Virginia; Roanoke, VA; and San Antonio, Texas. One other area partially estimated emissions reductions from federal measures: Washington County (Hagerstown), Maryland.

To provide as complete as possible an accounting of the federal emissions reductions, the study developed an approach for developing estimates of the emission reductions from federal measures. The study performed the calculation for following 14 areas (including the one area with partial federal measure estimates but excluding two areas that did not provide sufficient information to develop the estimates and the four areas that developed their own estimates):

Nonattainment-Deferred Areas

- Berkeley and Jefferson Counties, West Virginia;
- Chattanooga, Tennessee-Georgia;
- Columbia, South Carolina (Central Midlands Area);
- Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado;
- Fayetteville, North Carolina (Cumberland County);
- Greensboro-Winston Salem-High Point, North Carolina (Triad Area);
- Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area);
- Hickory-Morganton-Lenoir, North Carolina (Unifour Area);
- Johnson City-Kingsport-Bristol, Tennessee;
- Nashville, Tennessee; and
- Washington County (Hagerstown), Maryland.

Attainment Areas

- Mountain Area of Western North Carolina (Asheville);
- Oklahoma City, Oklahoma; and
- Tulsa, Oklahoma,

Three-Step Process
Generally, the approach consisted of three steps:

- **Step 1:** The first step is to calculate the difference in emissions in the base year (typically, a year between 1999 and 2002) and emissions in the 2007 control case. The emissions studied were the emissions that served as inputs into the air quality model used to demonstrate attainment. The number represents the total of state, local and federal emissions reductions, as well as emission increases resulting from population and industrial growth. Documentation for the emission inventory numbers can be found in the state and federal technical support documents developed to support the EAC Program SIPs (http://www.epa.gov/ttn/naaqs/ozone/eac/index.htm#EAC_Main).
- **Step 2:** Next, the emissions numbers in Tables B-5 to B-25, Appendix B for state and local measures that were quantified and modeled for each area were subtracted from the number derived in Step 1. For the one area with partial emission estimates from national measures, the emissions numbers subtracted from the number derived in Step 1 included emissions estimates for some, but not all, national measures. The resulting number for each area represents a reasonable *estimate* of emission reductions from federal measures in 13 of the 14 EAC areas. For the area with a partial estimate, the resulting number for each area represents a reasonable estimate of *other* emission reductions from federal measures. It is also important to note that of the 14 areas, the numbers for three areas derived in this step also include emission reductions from some state measures: Chattanooga, Tennessee-Georgia; Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado; and Nashville, Tennessee.
- **Step 3:** Finally**,** a new "Federal Measures" (or "Other Federal Measures") entry was created in each of the tables in Appendix B for the 14 areas to provide the number developed in Step 2.

Step One: Calculating Overall Emission Reduction Number
This table contains the calculations described in Step 1 above. The calculations are based on emissions information taken from the states' EAC SIP submittals.

EAC Areas	Total Modeled NO_x Reductions in Tons/Day from Base Year to 2007	Total Modeled VOC Reductions in Tons/Day from Base Year to 2007
Nonattainment-Deferred EAC Program Areas		
Berkeley and Jefferson Counties, West Virginia	1.9	0.4
Chattanooga, Tennessee-Georgia	27.43	26.9
Columbia, South Carolina (Central Midlands Area)	72	24.6
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	59	106.3
Fayetteville, North Carolina (Cumberland County)	10.2	7.8

EAC Areas	Total Modeled NO_x Reductions in Tons/Day from Base Year to 2007	Total Modeled VOC Reductions in Tons/Day from Base Year to 2007
Frederick County, Virginia	N/A	N/A
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)[1]	405.6	43.8
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	67.2	41.8
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)[2]	138.9	13.4
Johnson City-Kingsport-Bristol, Tennessee	12.63	20.74
Nashville, Tennessee	51.62	43.76
Roanoke, Virginia	N/A	N/A
San Antonio, Texas	N/A	N/A
Washington County (Hagerstown), Maryland	5.54	1.85
Attainment EAC Program Areas		
Austin, Texas	N/A	N/A
Berkeley-Charleston-Dorchester, South Carolina	N/A	N/A
Mountain Area of Western North Carolina (Asheville)	48.4	7.1
Oklahoma City, Oklahoma	24.2	5.3
Lower Savannah-Augusta, South Carolina-Georgia	N/A	N/A
Tulsa, Oklahoma	58.6	10.9

[1] The Greensboro estimate includes substantial NO_x reductions from a local electric generating unit.
[2] The Hickory estimate includes NO_x reductions from a local electric generating unit.

Steps Two and Three: Deriving an Estimate of Emission Reductions from Federal Measures and Creating an Entry in the Appendix B Tables

This table indicates which types of measures that were quantified and modeled were subtracted from the number derived in Step 1 to derive an estimate of emission reductions from federal measures. It also indicates whether federal measures exist as a stand-alone entry in the Appendix B table or whether specific federal measures are listed.

EAC Areas	Calculation to Create "Federal Measure" Entry in Appendix B Tables
Nonattainment-Deferred EAC Program Areas	
Berkeley and Jefferson Counties, West Virginia	For this area, the state of West Virginia modeled only national measures. The SIP did not provide any specific estimates for individual state and national measures. Therefore, Table B-5 contains an entry for national measures that is the number in Step 1 above.
Chattanooga, Tennessee-Georgia	Tennessee modeled state and national control measures, as well as several local measures. The Table B-6 contains an entry for national measures that was calculated by subtracting estimates for the modeled state and local measures contained in Table B-6 from the number in Step 1 above. The Chattanooga reduction estimate also includes estimates of the VOC emission reductions attributed to implementation of the statewide VOC reductions rule.
Columbia, South Carolina (Central Midlands Area)	South Carolina modeled only federal control measures. Table B-7 contains an entry for national measures that is the number in Step 1 above.
Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado	Colorado modeled state and national control measures. The Table B-8 contains an entry that includes national measures that was calculated by subtracting estimates for the modeled state measures contained in Table B-8 from the number in Step 1 above. The Denver reduction estimate for federal measures also includes estimates of the NO_x and VOC emission reductions attributed to implementation of the state's motor vehicle I/M program.[3]

[3] The estimates of the NO_x and VOC emission reductions attributed to implementation of the state's motor vehicle I/M program are embedded in the MOBILE6.2 emissions modeling work. The MOBILE6.2 model is used to project emission reductions from vehicle fleets from Federal tailpipe requirements and from fleet turnover with newer, less-polluting vehicles replacing older vehicles. When states run the MOBILE6.2 model, flags can be tripped in the model for the applicable I/M program being implemented for that year. The MOBILE6.2 model then uses all these data inputs to calculate predicted future year emission reductions (as in from a 2002 fleet to a 2007 fleet).

EAC Areas	Calculation to Create "Federal Measure" Entry in Appendix B Tables
Fayetteville, North Carolina (Cumberland County)	North Carolina modeled state and national control measures. The Table B-9 contains an entry for national measures that was calculated by subtracting estimates for the modeled state measures contained in Table B-9 from the number in Step 1 above.
Frederick County, Virginia	Table B-10 contains estimates the state provided of emissions reductions from federal measures.
Greensboro-Winston Salem-High Point, North Carolina (Triad Area)	North Carolina modeled state and national control measures, as well as a local measure. The Table B-11 contains an entry for national measures that was calculated by subtracting estimates for the modeled state and local measures contained in Table B-11 from the number in Step 1 above.
Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)	South Carolina modeled only federal control measures. Table B-12 contains an entry for national measures that is the number in Step 1 above.
Hickory-Morganton-Lenoir, North Carolina (Unifour Area)	North Carolina modeled state and national control measures. The Table B-13 contains an entry for national measures that was calculated by subtracting estimates for the modeled state measures contained in Table B-13 from the number in Step 1 above.
Johnson City-Kingsport-Bristol, Tennessee	Tennessee modeled state and national control measures, as well as a local measure. The Table B-14 contains an entry for national measures that was calculated by subtracting estimates for the modeled state and local measures contained in Table B-14 from the number in Step 1 above.
Nashville, Tennessee	Tennessee modeled state and national control measures, as well as a local measure. The Table B-15 contains an entry for national measures that was calculated by subtracting estimates for the modeled state and local measures contained in Table B-15 from the number in Step 1 above. The Chattanooga reduction estimate also includes estimates of the VOC emission reductions attributed to implementation of the statewide VOC reductions rule.
Roanoke, Virginia	Table B-16 contains estimates the state provided of emissions reductions from federal measures.
San Antonio, Texas	Table B-17 contains estimates the state provided of emissions reductions from federal measures.
Washington County (Hagerstown), Maryland	Maryland modeled state and national control measures. The Table B-18 contains an entry for *other* national measures that was calculated by subtracting estimates for the state and national measures contained in Table B-18 from the number in Step 1 above.

EAC Areas	Calculation to Create "Federal Measure" Entry in Appendix B Tables
Attainment EAC Program Areas	
Austin, Texas	Table B-19 contains estimates that the state provided of emissions reductions from federal measures as a whole.
Berkeley-Charleston-Dorchester, South Carolina	N/A
Mountain Area of Western North Carolina (Asheville)	North Carolina modeled state and national control measures. The Table B-21 contains an entry for national measures that was calculated by subtracting estimates for the modeled state measures contained in Table B-21 from the number in Step 1 above.
Oklahoma City, Oklahoma	Oklahoma modeled local and national control measures. The Table B-22 contains an entry for national measures that was calculated by subtracting the estimate for the modeled local measure contained in Table B-22 from the number in Step 1 above.
Lower Savannah-Augusta, South Carolina-Georgia	N/A
Tulsa, Oklahoma	Oklahoma modeled local and national control measures. The Table B-24 contains an entry for national measures that was calculated by subtracting the estimate for the modeled local measure contained in Table B-24 from the number in Step 1 above.

Appendix D: Brief Profile of the 14 Nonattainment-Deferred Areas and Six Attainment EAC Program Areas Included in this Study

14 Nonattainment-Deferred Areas:

Berkeley and Jefferson Counties, West Virginia
The Eastern Panhandle Region Early Action Compact (EAC) Program Area in West Virginia includes both Berkeley and Jefferson Counties. Both counties are relatively rural in character. Berkeley County covers 321 square miles and includes the City of Martinsburg, a city of roughly 15,000 people. The entire population of Berkeley County is approximately 76,000. Jefferson County is smaller, covering 212.4 square miles with a population of approximately 42,190. The three largest towns in Jefferson County are Charles Town (2,907), Ranson (2,951) and Bolivar (1,045). Historically, there had been little reason to site an air pollution monitor in the area due to its relatively low population and largely rural nature. More recently, growth in Berkeley and Jefferson Counties has largely been residential in character with few new large air pollution sources. Nevertheless, an ozone monitor was set up in Martinsburg, West Virginia that began operating in 2000 with complete quality assured ozone season data becoming available starting in 2001.

Chattanooga, Tennessee-Georgia
The Chattanooga, Tennessee-Georgia EAC Program Area is located on the southeastern side of Tennessee at the Tennessee-Georgia border. It consists of the unclassifiable/attainment counties of Marion County, Tennessee and Walker County, Georgia and the nonattainment-deferred counties of Hamilton and Meigs County, Tennessee and Catoosa County, Georgia. The population of the area is 372,264.

Columbia, South Carolina (Central Midlands Area)
The Columbia EAC Program Area consists of two nonattainment-deferred counties, Richland and Lexington and two unclassifiable/attainment counties, Newberry and Fairfield. It is located in the center of the state surrounding the City of Columbia, the capitol of South Carolina. The population is 494,518.

Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado
The Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado EAC area is located on the plains directly adjacent and east of the Front Range Mountains of the Colorado section of the Rocky Mountains. Metro-Denver is located in a slight depression area or shallow bowl (at 5,280 feet) with slightly rolling prairie areas to the north, east, and south. At the southern extend, a ridge called the Palmer Divide extends perpendicular to the Front Range and to the west of the entire area are the foothills (typically 9,000 feet) of the Front Range Mountains. The population of the Denver-Boulder-Greeley-Fort Collins-Loveland, Colorado area is approximately 2.5 million and contains the major cities of Denver, Aurora, Fort Collins, Boulder, Longmont, Loveland, Golden, and Greeley.

Fayetteville, North Carolina (Cumberland County)
The Fayetteville EAC Program Area consists of Cumberland County and is located in southeastern North Carolina. Cumberland County was nonattainment-deferred. It is a mixture of urban and rural lands. The 2000 census population for Cumberland County was 302,963, some of which is rural -- 20,540 -- and most of which lies within the Urbanized Area Boundary -- 282,423. Population density is also varied. Because of the difference in land use and densities, care was exercised when proposing and

selecting strategies to be implemented by such diverse jurisdictions. The Cantonment Area of Fort Bragg Military Reservation and Pope Air Force Base are also located within Cumberland County.

Frederick County, Virginia
The Northern Shenandoah Valley EAC Area consists of the City of Winchester and Frederick County and is located in the Valley and Ridge Region of Virginia that includes the Northern Shenandoah Valley and the Appalachian Ridge. The major urban center of the area is the City of Winchester that is surrounded by the suburban/rural Frederick County. Much of the western portion of Frederick County is mountainous and forested rural area associated with the Appalachian Ridge. The majority of the area's population (82,794 in 2000) and industry is centered in and around Winchester, Virginia. The area's monitor is located in Northeastern Frederick County just south of the West Virginia border.

Greensboro-Winston Salem-High Point, North Carolina (Triad Area)
The Triad EAC Program Area is located in the northern central portion of North Carolina. The nonattainment-deferred counties in the EAC Program Area were Rockingham, Caswell, Forsyth, Guilford, Alamance, Davie, Davidson and Randolph. The unclassifiable/attainment counties in the EAC Program Area were Surry, Yadkin and Stokes. Population of the Triad EAC Program Area is 1,285,879.

Greenville-Spartanburg-Anderson, South Carolina (Appalachian Area)
The Appalachian (Greenville-Spartanburg-Anderson), North Carolina EAC Program Area is in the northwest section of South Carolina. It consists of the nonattainment-deferred counties of Spartanburg, Greenville and Anderson and the unclassifiable/attainment counties of Cherokee, Pickens and Oconee. The larger cities in the area include Greenville and Spartanburg. The population of the Appalachian EAC Program Area is 310,000.

Hickory-Morganton-Lenoir, North Carolina (Unifour Area)
The Unifour area includes Alexander, Burke, Caldwell, and Catawba Counties. All of these counties were nonattainment-deferred. It is located in the central eastern portion of the state. The population for the EAC Program Area is 1,300,000. The City of Hickory noted a period of unprecedented growth in the 1990s. This was accompanied by an increased reliance on non-public transportation. The increase in vehicles miles traveled that resulted contributed to such challenges as congestion and air pollution. Thus, beginning in the summer of 1998, the City of Hickory has been very active in trying to reduce air pollution in the Unifour area. Caldwell County and Catawba County have been very active as well. There are two ozone monitors in Unifour EAC Program Area. One is located in Lenoir, Caldwell County and the other in Taylorsville, Alexander County.

Johnson City-Kingsport-Bristol, Tennessee
The Johnson City-Kingsport-Bristol, Tennessee EAC Program Area is located in the far Northeast corner of the state. It consists of two nonattainment-deferred counties, Sullivan and Hawkins and four unclassifiable/attainment counties, Washington, Unicoi, Carter and Johnson. The population of the area is 207,000. Hawkins and Sullivan Counties are located in the ridge and valley section of the East Grand Division of the state bordering Virginia.

Nashville, Tennessee
The Nashville, Tennessee EAC Program Area is located in the north central portion of the state and consists of eight counties. Five of the counties are nonattainment-deferred. These include Davidson,

Rutherford, Williamson, Wilson and Sumner Counties. The attainment counties are Robertson, Cheathan and Dickson Counties. The population of the area is 1,098,000.

Roanoke, Virginia
The Roanoke EAC Program Area is located within the Blue Ridge Mountain area of Virginia and has typical topographic characteristics of such a mountain and valley area. The major urbanized center area is located in a valley and made up of the Cities of Roanoke and Salem, along with the Town of Vinton, where the ozone monitor for the area is located. The more suburban and rural Roanoke County, with Botetourt, surrounds this core urban area to the North. The major commercial transportation corridor of Interstate 81 runs through the entire area from north to south, which is just to the west of the urban core. A significant portion of Northwestern Botetourt County is rural and part of the Jefferson National Forest.

The total land area of the Roanoke EAC Program Area is 851 square miles. According to the 2000 Census, the population was 235, 932, with a population density of 277 per square mile. The projected population growth in the Roanoke Area by expected by 2010 is 244,499 persons.

San Antonio, Texas
San Antonio is located in south central Texas, SSW of Austin. The San Antonio EAC Program Area consisted of four counties -- Bexar, Comal, Guadalupe and Wilson – with a population of 1,559,975 in 2000. The area has always been in attainment with the 1-hour ozone standard, but was not consistently able to maintain the 8-hr standard. In 2004, the San Antonio area was designated as nonattainment for the 8-hr ozone standard, but achieved the standard in 2007. The Alamo Area Council of Governments was the local lead for the EAC.

Washington County (Hagerstown), Maryland
Washington County is located in west-central Maryland, bounded by Pennsylvania, Virginia, and West Virginia. The county extends east to South Mountain, south to the merging of the Shenandoah and Potomac Rivers, north to the Pennsylvania border, and west to Sideling Hill Creek. It is bordered by the Appalachian Highlands, and situated at the center of the Cumberland Valley with low rolling hills, cultivated valleys, woodlands, and moderate elevations of 500-800 feet above sea level. Hagerstown, the county seat, is located in the center of the county and approximately 75 miles west of Washington, DC, and Baltimore.

Washington County enjoys a high employment rate and moderate incomes, with a lower cost of living than nearby metropolitan areas. According to the 2000 Census and the Maryland Department of Labor, Washington County had a population of 131,923 people, as well as 49,726 households and a workforce of 70,857 people. Projected population growth in Washington County is expected to increase from the 2000 levels, but not at the same rate from 1990 to 2000. The total land area in the county is 485 square miles. The population density is relatively small compared to the counties in the Baltimore and Washington, DC areas, which have a population density over 1,000 people per square mile.

Six Attainment EAC Program Areas:

Austin, Texas
Austin is located in south central Texas, NNE of San Antonio. The Austin EAC Program Area consisted of five counties – Bastrop, Caldwell, Hays, Travis and Williamson – with a population of

1,249,763 in 2000. The area has always been in attainment with the 1-hour ozone standard, but was not consistently able to maintain the 8-hr standard.

Berkeley-Charleston-Dorchester, South Carolina
The Berkeley-Charleston-Dorchester, South Carolina EAC Program Area consists of Dorchester, Berkeley and Charleston Counties. It is located around the Charleston area on and around the Atlantic Coast. Charleston is the largest city in the area. The ozone monitor is located in Berkeley County.

Mountain Area of Western North Carolina (Asheville)
The Mountain Area Compact is a diverse region of five Western North Carolina counties comprising more than 2400 square miles. According to 2002 estimates, County populations range from 212,907 in Buncombe to 20,192 in Madison. Henderson (93,033), Haywood (55,299) and Transylvania (29,997) fall within those extremes. Population density, total workforce and infrastructure development exhibit similar county-to-county variation. Services and retail trade are strong factors in each local economy, reflecting the area's popularity for retirement living and for travel and tourism. All of the Mountain Area EAC counties were designated unclassifiable/attainment.

Oklahoma City, Oklahoma
Oklahoma City is located in central Oklahoma. The Oklahoma City or Central Oklahoma EAC Program Area consisted of seven counties: Canadian, Cleveland, Grady, Lincoln, Logan, McClain, and Oklahoma. In 2000 the area had a population of 1,083,346. The area has always been in attainment with the 1-hour ozone standard, but was not consistently able to maintain the 8-hr standard.

Lower Savannah-Augusta, South Carolina-Georgia
The Lower Savannah-Augusta, South Carolina-Georgia EAC Program Area is located in the southern central portion of South Carolina just south and west of Columbia. The area includes the Aiken-Augusta Area. The EAC Program Area consists of Aiken, Orangeburg, Barnwell, Calhoun, Allendale and Bamberg Counties in South Carolina and Richmond and Columbia Counties in Georgia. There are monitors each located in Barnwell and Aiken Counties in South Carolina. There are also ozone monitors in Richmond and Columbia Counties in Georgia.

Tulsa, Oklahoma
Tulsa is located in northwestern Oklahoma. The Tulsa EAC Program Area consisted of five counties: Tulsa county and portions of Creek, Osage, Rogers, and Wagoner. In 2000 the area had a population of 803,235. The area has been in attainment with the 1-hour standard, but has not consistently maintained the 8-hr standard.

Appendix E: Summary of Discussions with State and Local Agencies

This appendix contains a complete summary of the discussions held with state and local officials as part of this study. It is organized into two parts. The first part contains the discussions held with state and local officials involved in the Early Action Compact (EAC) Program. The second part contains the discussions held with state and local officials with respect to the traditional State Implementation Plan (SIP) program. Each part is organized by study question with the responses under headings for each respondent.

EAC PROGRAM AREA DISCUSSIONS

1) **Is the EAC model a more efficient way to deliver clean air to citizens in these areas (versus the traditional nonattainment designation approach)? If so, how? If not, why?**

STATE ENVIRONMENTAL AGENCIES

Colorado Department of Public Health and Environment (CDPHE)

The CDPHE believed that the EAC was a good program. By not having to address standard nonattainment requirements, the EAC Program made it easier to bring industry and other parties into the stakeholder process. The program design worked well for the CDPHE. It contained good incentives to succeed. First, Denver had the motivation to sign up for and implement the program in order to gain relief from the Transportation Conformity and Nonattainment New Source Review (NSR) Program requirements. Second, Denver had the flexibility to pick and choose control measures. Although Denver fell short of its goal and violated the standard at one monitor, the controls helped the city offset significant growth.

Georgia DNR Department of Natural Resources (Georgia DNR)

Georgia DNR believed that the EAC Program is more efficient for areas that are very close to the standard. Areas that are well above the standard, such as Atlanta, are not appropriate to participate in the program. The EAC helps states by deferring the Nonattainment NSR and Transportation Conformity Program requirements. States do not have to use as many resources on areas that do not need to meet these requirements. The EAC Program in Georgia did not go well but the state learned how to work with similar programs.

Louisiana Department of Environmental Quality (LDEQ)

LDEQ stated that the EAC Program is a more efficient approach. The state considered it important to avoid nonattainment status because of the resources needed to meet the requirements of the Nonattainment NSR and Conformity Programs. In addition, Louisiana DEQ believed that the EAC approach required a little less outreach than needed for the traditional approach.

Maryland DNR Department of Natural Resources (MDDNR)

MDDNR believed that the EAC approach is a more efficient method for areas that are relatively close to the standard. In these situations, a few local measures, coupled with state, regional, and national programs, are all that is needed to bring the area into attainment. The EAC Program is not the right model for areas further from the standard that need more measures to reach attainment.

New Mexico Environment Department (NMED)
The EAC approach has some advantages over the traditional approach. The EAC approach is more collaborative. The San Juan County EAC enjoyed wide stakeholder representation, including the oil and gas industry, utilities, and local governments. The EAC Program was much better received than a nonattainment designation would have been by stakeholders. The process produced a healthy, productive dialogue among stakeholders. It also provided them with an opportunity for networking and an understanding of the challenges facing the area.

North Carolina Department of Environment and Natural Resources (NCDENR)
NCDENR found it difficult to say which approach is more efficient. It is possible that the EAC Program areas reached attainment earlier than they would have otherwise. The EAC Programs were proactive in fostering partnerships. This led to new ideas, local ownership, and may have resulted in greater efficiency. Overall, the EAC generated a more positive working situation between the state and participating areas than would have occurred under the traditional approach.

In the North Carolina EAC Program areas, local stakeholders appeared to be willing to do anything feasible to obtain better air quality. As awareness of the issue increased, local governments and business looked for more things to do to improve air quality. Businesses in the EAC Program areas were willing to participate in the idle reduction strategy. Local stakeholders stepped forward to become part of the effort to reach a common goal.

Awareness of air quality issues, and local activity, was greater in EAC Program areas than in other areas of state where the state did not place as much emphasis on local measures. Without the EAC approach, the areas participating in the program most likely would not have implemented so many activities, due primarily to the fact that the EAC Program areas were projected to attain with federal and state measures alone.

Oklahoma Department of Environmental Quality (OKDEQ)
Oklahoma DEQ believed the EAC was more efficient. The EAC Program provided an incentive for Tulsa and Oklahoma City to proactively address air quality issues earlier than they would have otherwise. The threat of receiving a nonattainment designation was a critical factor in their decisions.

South Carolina Department of Health and Environmental Control (South Carolina DHEC)
The EAC Program was more efficient because it obtained cleaner air sooner than would have otherwise occurred. The EAC Program made more sense than the traditional route for areas that were close to the standard. The education that occurred in these areas was extremely important. Stakeholders realized that the decisions they make everyday have an impact on air quality.

In addition, local stakeholders would not have been as involved without the EAC Program. The traditional method creates more of an adversarial relationship. The EAC Program created better relationships with all parties involved in the process. Through the EAC Program, the state established better working relationships with local governments than they ever had in the past.

Tennessee Department of Environment and Conservation (TDEC)
The EAC is more efficient. The traditional approach creates a lot of resentment. Under the traditional approach, the Tennessee DEC becomes an extension of EPA. As a result, the state bears criticism for administering the mandatory measures required under nonattainment designation. In addition, localities

are not inclined to make an effort to improve air quality if they think that the area will be designated nonattainment anyway. The areas are not motivated to do anything locally.

During the EAC, the state created partnerships with stakeholders that it never would have had to otherwise. Transportation conformity is supposed to drive conversations with localities. Importantly, however, the EAC Program attracted the attention and involvement of local elected officials. At the local level, action starts to happen when local elected officials become involved in an issue.

In addition, the EAC changed the dynamic of addressing air quality issues. Citizens and industry become involved voluntarily in the program. By getting involved, citizens develop ownership of the air quality in their community. This offers the public an opportunity to solve a problem with "good old American knowledge and hard work". It gives people hope that they can do something about the quality of life in their area. That is very important. Public involvement also brings about changes in personal lifestyles to keep the air clean. In addition, the public also develops a better understanding of the connection between air quality and health during air quality action days.

At first, all of the areas in Tennessee tried to get into the EAC Program. The prospect of becoming an EAC Program had everyone working hard initially. Knoxville and Memphis did not become EAC Program areas but they still moved forward with measures. For example, both locations lowered the speed limits in their counties.

Tennessee will see a lot of Code Orange days with the new standard. The state will draw upon the EAC coalitions to continue their work to address the new standard.

Texas Commission on Environmental Quality (TCEQ)
It depends on the circumstances. The EAC Program is not necessarily more efficient than the traditional method.

Virginia Department of Environmental Quality (VADEQ)
The EAC was more efficient and a less burdensome process. Because they had never been out of compliance, the two areas in Virginia were new to air quality issues. The EAC process allowed them to design a plan to address their problems without getting bogged down in the requirements of nonattainment areas. Both areas felt they had more control through the EAC process.

There were some initial problems as the state educated local elected officials and others on the need to address air quality. Once the process was underway, the participants developed a plan rather quickly. Virginia felt that the local areas were much more involved in EAC Program areas than they would have been otherwise.

The EAC Program reduces demand on state resources but increases demand for local resources. If the areas had not been in attainment, however, local officials and the Virginia DEQ and the Virginia Department of Transportation would have had to do more work to meet the Conformity and Nonattainment NSR Program requirements. Neither community would have been able to meet conformity standards without assistance

West Virginia DEP
It partly depends on what an area has to do in the program. Local measures may be more efficient in concept but will not work if local stakeholders are not engaged in the process. It really depends on a case-by-case basis.

West Virginia is a small state with large power plants and the remnants of a manufacturing base. Berkeley and Jefferson Counties were likely to come into attainment through national and regional measures alone. The EAC addressed maintenance in the area until 2012. A traditional SIP would have addressed maintenance in the area until 2018. Due to high growth in Berkeley and Jefferson Counties, the area was perhaps better suited to the EAC concept that encouraged the incorporation of local measures to address growth.

LOCAL GOVERNMENT AGENCIES

Capital Area Metropolitan Planning Organization (CAMPO, Austin, Texas)
CAMPO (Austin, Texas) could not definitively answer whether the EAC is more efficient because it had never participated in the traditional approach. But, the EAC Program did speed up the timing of emissions reductions. It normally takes five years (from nonattainment designation to SIP submittal) to get emissions reductions. The desire of EAC participants to clean up the air as quickly as possible did generate quicker results. The program's flexibility and a desire to avoid nonattainment lead to a greater local investment in air quality issues.

Chattanooga-Hamilton County APCD Air Pollution Control Board (CHCAPCD)
The EAC model is more efficient. The EAC Program generated local support by pointing out that Chattanooga would receive clean air sooner by participating in the voluntary program. If the area had gone through the traditional approach, the response from stakeholders would not have been as positive. For example, the area volunteered to do an inspection and maintenance program. The program has been successful. Not everyone likes the program but stakeholders accept it. If EPA had proposed the inspection and maintenance program, however, there would have been more opposition from the community. In general, the community needs jobs and economic growth. So, it made a difference not having to address the Nonattainment NSR Program with economic development prospects. Due in part to the early action compact and its success, Volkswagen selected the Chattanooga area in July 2008 as the site for its new U.S. manufacturing facility and headquarters.

Denver Regional Air Quality Council (RAQC)
The EAC is generally more efficient than the traditional approach. Deferral of a nonattainment designation provided an incentive for Denver to do things much sooner than it would have through the traditional approach. In that sense, the EAC Program achieved its desired result. By requiring a SIP, however, the process is still pretty inflexible. It is not much more flexible than the traditional process. If Denver had taken the traditional route, the area would have been designated as "marginal" nonattainment. The City would have had to conduct an inventory but the not air quality modeling that the EAC Program required. This would have required a rather minimal paperwork exercise. No new measures would have been required.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The EAC process is more efficient and equitable than the traditional process. Although some regulatory requirements were non-negotiable, Frederick County had more influence in deciding how and what to control throughout the program. The traditional approach would not have recognized the measures already undertaken by point sources in the area.

Greenville County, South Carolina Government
The EAC is a very valuable tool. The main value of the program is that it lets local areas come into compliance through their own methods. This approach works better than EPA telling an area to do specific measures. Although the command and control method may have achieved the same results, it certainly would not have created the same dynamic and strong partnerships at the local level.

The traditional approach would have generated resistance from industry. Under this approach, Greenville County would have been repeating EPA requirements. The EAC process brought in stakeholders from the planning sector, chamber of commerce, business, local governments (three counties in Upstate South Carolina), and industry. Government did not tell private or nonprofit entities what to do to improve air quality. Instead, the EAC Program enabled a consensus-based approach that encouraged sharing the expertise, thoughts, and ideas of all stakeholders. This approach allowed stakeholders to develop and implement their own strategies.

The EAC Program did not take less effort by Greenville County. Because the County would have encountered resistance from the private sector if it had gone through traditional approach, the EAC Program was more efficient from that standpoint.

Aiken County, South Carolina Government (Lower Savannah)
Initially, the EAC Program was better than the nonattainment route. Public participation was good at the first set of meetings. For example, thirty or forty people came to the meetings when the Lower Savannah area first started the program. But, attendance dropped off after the area produced three years of clean air quality data. Local governments had the perception that the problem had been solved. Representatives of small municipalities, Aiken County public schools, public works, and other public entities stopped coming to the meetings. However, representatives of large companies kept participating.

Georgia and South Carolina handled their own portions of the EAC Program Area. In general, more proactive measures were conducted to improve air quality through the EAC Program.

ACOG (Oklahoma City)
The EAC was a more efficient model for Oklahoma City. The program provided an opportunity to get the message out and capture the attention of local stakeholders. People paid attention to the issue because it involved a tangible situation. No one would have listened otherwise.

Piedmont Triad Council of Governments (PTCOG)
The EAC Program was definitely more efficient than the traditional approach. The EPA set the standard that participants had to meet. The program required accountability and local government commitment from participating areas. In return, EPA provided participants with the flexibility to develop local strategies without having to do a lot of peripheral activities.

Washington County Government
The EAC is not more or less efficient than the traditional approach. But, the approach made the EAC Program effective. It provided participants with a "gentle" introduction to air quality issues. This allowed the state time to educate local officials. Washington County had the opportunity to become more engaged in the program. The County also had the opportunity to educate the public about air quality issues. Citizens also became aware they could play a role in improving air quality.

a) What has been the impact of EACs on State and local resources?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
It is difficult to quantify the resource impact of the program. The Colorado DPHE saved money and staff time in the EAC planning process. The state did not have to involve all stakeholders in the process. For example, the EAC reduced the number of meetings because the state only had to address affected industry groups. It did not have to work with all industries located in the area. The EAC Program also reduced travel time by the state. However, the state still had to develop and meet all requirements of a SIP.

Georgia DNR
Local stakeholders spent more resources in the EAC Program than they would have in the traditional program. This is because local stakeholders would not have been as involved in the traditional method. Under the traditional approach, industry would pretty much have been the only stakeholder involved in the process.

Louisiana DEQ
Participation by the Mayor's office in Shreveport and local government made the EAC process a lot easier.

Maryland DNR
For Maryland DNR's response to this question, see question 1.b. below.

New Mexico ED
The state expended a little less resources for the EAC compared to what it would have under the traditional approach. It is difficult to estimate the impact on local areas.

North Carolina DENR
More state and local resources were expended in the participating areas than would have been used without the EAC Program. But, it has been a positive investment. Local measures will become even more critical with the upcoming standard. The EAC is a good model to follow.

Oklahoma DEQ
The use of state resources in an EAC Program is more intensive up front than it would be with a wait-and-see approach. The state provided technical support to the EAC Program areas. The council of governments managed the local programs. The outreach activities included many meetings to engage stakeholders and to develop advertising campaigns that involved public service announcements (PSAs).

In the long run, however, participation in the EAC may save resources by avoiding nonattainment designation. Participation is certainly worth the "insurance" policy that areas receive by avoiding nonattainment status.

South Carolina DHEC
It is not clear whether more state resources were used in the EAC Program than would have been expended in a traditional approach. In a traditional nonattainment area, more people are involved in "bureaucratic exercises" dealing with the Transportation Conformity and Nonattainment NSR Programs. Conversely, in EAC Program areas, the resources are used more efficiently on implementing "air quality improvement efforts".

Tennessee DEC
It took the state a lot of time to convince areas to participate in the EAC Program. The resources expended in the EAC Program have been a worthwhile investment. Results are always greater when local areas embrace a program.

Texas CEQ
Even though awareness was already raised in Texas' EAC Program areas, state resources were still required as there was a lot of back and forth time spent with the local EAC participants and EPA on several issues.

Virginia DEQ
In general, the EAC process reduced the amount of resources required by the state to address air quality in the participating areas. There were fewer resource and administrative requirements such as the conformity process, nonattainment permits, and offset requirements.

At the local level, it is likely that slightly more resources were required to set up local programs, websites, and provide outreach. But, the state believes that both EAC Program areas saw this as a worthwhile investment.

West Virginia Department of Environmental Protection (West Virginia DEP)
For West Virginia DEP's response to this question, see question 1.b. below.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
A regional committee of local and regional governmental entity staff handled the planning work for the EAC Program. The state contributed by passing legislation that funds air quality planning and implementation in near nonattainment areas in Texas and adopting several state rules that reduced emissions in the Austin area.

Chattanooga-Hamilton County APCD
The EAC activities did raise public awareness in Chattanooga-Hamilton County APCD more than would have occurred under the traditional approach. This required more local resources than would have been used in the traditional approach. For example, Chattanooga-Hamilton County APCD decided to claim credit for its voluntary action day program. The County now regrets this decision. It spent a "huge" amount of money (between $30,000 to 35,000 per year) to meet EPA requirements for

documenting the effectiveness of the program. The County had to conduct random telephone sampling to estimate participation and associated emissions reductions. This resulted in a lot of effort and expenditure for an insignificant environmental benefit. The County would not seek to claim credit for such activities again. The county, instead, now puts the same amount of money into other actions, such as radio and television advertisements.

Greenville County, South Carolina Government
The EAC approach made more resources available to Greenville County than would have been available through the traditional approach. Local stakeholders stepped up, took ownership of the program, and tried to implement control measures. For example, the Sierra Club suggested offering tax incentives to purchase low emission vehicles and they worked with the state legislature on the bill until it passed in June 2006.

Note: Greenville County began exploring the generation of green power as a result of one strategy conceived through the EAC process and included in the report. As a result Greenville County entered into an agreement with a company to produce green power. This project will begin in fall 2008.

Greenville County, South Carolina Government did not add any additional staff for the EAC. But, the County did add air quality duties to the work of existing staff.

Denver RAQC
The EAC had a significant impact on resources. Modeling and processing requirements took resources to complete. Denver received assistance from different areas, including the EPA ($100,000) the Denver Area Metropolitan Planning Organization (MPO), and the Colorado Department of Transportation.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The Virginia DEQ and the EDC worked together to sell the EAC Program to local elected officials in the City of Winchester and Frederick County. Consultants developed and implemented parts of a follow-on EAP. Overall, the EAC cost the County more upfront than the traditional approach. But, the program was worth the expense to avoid nonattainment status.

Aiken County, South Carolina Government (Lower Savannah)
Aiken County, South Carolina Government (Lower Savannah) did not hire new staff to work on the EAC. Aiken County primarily had one staff person working on the EAC. Other counties also used core staff for the EAC Program. The main expenses were for newspaper advertisements and public meeting handouts.

ACOG (Oklahoma City)
Oklahoma City definitely spent more resources on the EAC than it would have in the traditional approach.

Piedmont Triad COG
For Piedmont Triad COG's response to this question, see question 1.b. below.

Washington County Government
For Washington County Government's response to this question, see question 1.b. below.

b) Did the EAC approach save money and resources over the traditional approach?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
It is difficult to compare the resource allocations under the two different approaches. However, the state did save money and staff time in the planning process. Although it saved some resources by not having to involve all stakeholders, the state still had to allocate resources to SIP development.

Georgia DNR
The program was resource intensive for Georgia in the short term because the EAC Program areas were not familiar with air quality issues. The state had to spend resources and time traveling to teach participants about air quality issues. In the long run, the EAC Program saved the state resources. But, the Chattanooga Tennessee-Georgia EAC Program areas lost some of the gains when designated nonattainment for $PM_{2.5}$.

Louisiana DEQ
Louisiana DEQ made several visits to Shreveport to assist in development of the EAC there.

Maryland DNR
Maryland DNR expended more resources through the EAC approach than would have been required in the traditional SIP approach. The additional resources were needed to complete the requirement for ongoing progress reports. The administrative requirements were burdensome and felt very similar to the SIP approach.

New Mexico ED
For New Mexico ED's response to this question, see question 1.a. above.

North Carolina DENR Department of Environment and Natural Resources (NCDENR)
Overall, the EAC cost North Carolina DENR more in resources than the traditional approach. The state had to attend more meetings and do more modeling runs than would have necessary under traditional approaches. However, North Carolina DENR does not believe that comparing resource expenditures is an appropriate method for an EAC Program study. The benefits of EACs outweigh the costs.

Oklahoma DEQ
Oklahoma DEQ expended more resources initially on the EAC Program than it would have by waiting to see whether the areas became nonattainment. In the long run, however, the EAC Program may save the state resources. The EAC approach is certainly worth the "insurance" policy that the areas receive by avoiding nonattainment designation.

South Carolina DHEC
It is difficult to determine whether the EAC approach saved resources for South Carolina DHEC. The state did not hire additional staff or spend additional money on the program. Instead, staff shifted focus from technical SIP work to working with local EAC Program areas. Under the traditional approach, the state would not have conducted as much outreach to local areas. The EAC Program areas would have attained with federal and state measures alone. Consequently, there was more local activity

under the EAC approach. If new modeling had been required, however, the EAC approach would have required additional resources from the state.

Tennessee DEC
Overall, the EAC process may have cost Tennessee DEC more in resources. But, the EAC Program Area benefited by having measures tailored to local conditions that still provided for economic growth.

The EAC Program did cost Tennessee DEC more time and resources initially. The state had to work with the local area to develop consensus and ownership of the project. Once the EAC Program was in place, however, the state did not have the battles with elected officials it has had in the past under the traditional approach. The EAC Program allowed stakeholders to develop local measures instead of spending time arguing over issues. It is hard to put a price on building good will. However, the enormous good will built through the EAC Program has been priceless.

Texas CEQ
Overall, Texas CEQ had to allocate more staff time for the EAC approach. The amount of local resources spent on the program depends on the individual area. The Austin, Texas area is zealous in its approach to the environment. It wanted to do everything. So, it devoted a lot of time and resources to the EAC Program.

San Antonio saved money and resources by participating in the EAC. The City did not have to do the work or develop the measures that would be required for a traditional nonattainment SIP. So, the City had less work to do than it would have if designated nonattainment.

North East Texas conducted an outreach and education campaign. The level of effort was not more intensive than it would have been without the EAC Program.

Virginia DEQ
Virginia did not see a big cost difference between the EAC and traditional approaches. The EAC effort required more initial work and resources from the state. But, the traditional approach would have required more state resources over time.

Under the EAC approach, local areas are more willing to contribute resources because they have greater responsibility for the program. Areas that are designated nonattainment rely more on the state for resources. So, it is difficult to say whether one approach is more costly than the other.

West Virginia Department of Environmental Protection (West Virginia DEP)
In West Virginia, the EAC approach required fewer resources at the state level than needed to conduct rulemaking for a traditional SIP. Virginia conducted the modeling. However, the EAC Program required more resources at the local level to engage stakeholders.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
It is difficult to compare because CAMPO (Austin, Texas) has never done the traditional approach. A regional committee of local and regional governmental entity staff conducted the planning work. The

state contributed funding for air quality planning and implementation in near-nonattainment areas and adopting several state rules that reduced emissions in the Austin area.

Chattanooga-Hamilton County APCD
Chattanooga-Hamilton County APCD could not think of instances in which the EAC Program saved money and resources.

Greenville County, South Carolina Government
For Greenville County, South Carolina Government's response to this question, see question 1.a. above.

Denver RAQC
For Denver RAQC's response to this question, see question 1.a. above.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The EAC cost Frederick County more initially but it was worth the expense to avoid nonattainment status. It did save other affected community stakeholders (businesses and citizens).

Aiken County, South Carolina Government (Lower Savannah)
It is difficult to say whether the EAC saved money and resources. The same outreach activities would have been conducted with the traditional approach. However, Aiken County, South Carolina Government (Lower Savannah) would also have had to deal with conformity under the traditional approach. So, the EAC Program may have saved some resources.

ACOG (Oklahoma City)
The EAC Program did not save Oklahoma City money or resources.

Piedmont Triad COG
Without the EAC Program, air quality activities would have occurred in Greensboro and Winston-Salem but not in the rural areas and smaller towns as those areas were not equipped to take on the issue.

Washington County Government

2) What have been other impacts, intended or not, if any, of EACs on local communities and State air agencies?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
Overall, the EAC Program had a positive impact. The EAC brought a considerable number of elected officials onboard quickly to think about air quality issues. Many local officials, especially at the county level, became involved in the process because they had to sign the EAC memorandum of understanding (MOU). This level of participation does not usually occur with the traditional approach. However, there was a feeling of failure when the area became nonattainment. In particular, the oil and gas industry felt that all the emission reductions they did might not have affected the outcome.

Georgia DNR
Local stakeholders did develop an improved awareness of air quality issues. But, the improvements are due to the "$PM_{2.5}$ focus area" program, an EAC-type effort to avoid nonattainment designation, and not the EAC Program.

Louisiana DEQ
There is more local participation under the EAC approach.

Maryland DNR
Local stakeholders participated more quickly and to a greater degree than they would have under the traditional approach. The EAC schedule made it necessary for stakeholders to become involved in the initial stages of the program. Washington County developed a working relationship with stakeholders early in the process. The County also had to obtain much-needed assistance with air quality modeling.

North Carolina DENR
The EAC Program led to the adoption of local measures that could not have been mandated by the state. The measures would not have been discussed without the flexibility of the EAC Program. The outreach activities also led to a greater awareness and continued enthusiasm for air quality issues. Local areas have asked the state whether another EAC Program can be done for the 2008 ozone standard.

The Hickory, EAC Program Area continues to hold monthly meetings. In June 2008, Hickory will hold a 2nd annual conference in June to discuss air quality issues with industry and the public. The Fayetteville and Triad EAC Program areas have hired air quality coordinators. Fayetteville changed their roads and bus routes to improve air quality. In addition, Fayetteville established more dialogue with Fort Bragg on air quality issues. These types of activities will continue in the future.

New Mexico ED
The EAC has had a snowball effect on awareness of air quality issues. The state established a task force to work on the EAC. After the EAC Program ended, the state created a successor group. The new task force attracts approximately 80 attendees from federal, state, local, and tribal governments to regularly scheduled meetings. In addition to other issues, the task force is preparing the groundwork to meet the next standard.

Oklahoma DEQ
The EAC Program produced positive and negative impacts. On the positive side, the Department of Environmental Quality received $500,000 from the state Department of Transportation for ozone modeling. The program enhanced air quality awareness among elected officials and the public in EAC Program areas. The Tulsa and Oklahoma City Councils of Governments made greater efforts to get the word out on ozone action days. Overall, the cost/benefit analysis came out favorably, although the benefits were fuzzy.

On the negative side, the state became frustrated with the pace of required data submittal from local areas. However, Oklahoma DEQ viewed the biannual reporting requirement as worth the effort to avoid nonattainment designation.

South Carolina DHEC
South Carolina DHEC conducted a statewide EAC Program. Consequently, the state found it difficult to compare the impacts among local areas. The EAC Program generated substantial support in local areas. For example, Charleston did not have a problem with the 1997 8-hour National Ambient Air Quality Standard (NAAQS). Although it did not, therefore, have to participate, Charleston still became very engaged in the EAC Program. Darlington and Florence were in a similar position but were also very engaged in the process.

The EAC Program helped communication between the state and local areas. When the $PM_{2.5}$ NAAQS changed, the state already had a direct line of contact with the local areas. In addition, coalitions are being formed and partnerships expanded to develop a multi-pollutant approach now that the new ozone NAAQS is final.

Tennessee DEC
As a result of the EAC Program, the public pays more attention and understands the air quality index much better. The public is also more aware of personal actions they can take to improve air quality. In Williamson County, local officials host a weekly program on the community access channel. The area never had anything like that before the EAC Program.

Texas CEQ
The EAC generated a range of benefits in Texas. Texas CEQ made a commitment to provide Texas Emission Reduction Plan funds to each EAC Program Area. These local programs would not have been funded without the EAC Program.

Local governments developed an increased awareness of air quality issues that would not have taken place without the EAC Program. The EAC also led to cooperation among local stakeholders. Austin, Texas voluntarily adopted an inspection and maintenance program. After state permits were issued, the city obtained voluntary emissions reductions from industry. In San Antonio and North East Texas, the EAC Programs established a level of cooperation between industry and other local stakeholders. San Antonio provided information to industry seeking a permit to retrofit equipment that would reduce emissions. The City also obtained voluntary agreements to reduce emissions after permits were in place.

Virginia DEQ
The EAC increased the involvement of local stakeholders in air quality issues. Elected officials and citizens became more aware of air quality issues.

West Virginia DEP
The EAC fosters local engagement in air quality issues. Local stakeholders have to become involved if the program is to work. However, West Virginia DEP is not sure how much time local governments still spend on EAC activities. There were no real downsides to the EAC Program other than the reporting requirements.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)

The EAC has produced only positive impacts in Austin, Texas. The program raised awareness and acceptance by local elected officials and stakeholders of the need to improve air quality. The EAC provided local flexibility to solve the local air quality problem. This made it easier for the five participating counties, including two rural areas, to make hard decisions and develop emission reduction strategies that consider the varied issues and circumstances of the jurisdictions in the region. The EAC also led to better coordination between state and local officials.

Chattanooga-Hamilton County APCD

Public awareness of air quality issues increased in Chattanooga-Hamilton County APCD as a result of the EAC. People began thinking about air quality and how to improve it.

Denver RAQC

The EAC process led to more outreach, awareness and voluntary action than would have occurred otherwise. Local stakeholders completed a lot of work related to air quality in a short period of time. Heightened awareness of the ozone situation was the greatest impact of the program. Without the increased awareness, Denver would not have received funding from the transportation planning process. The heightened awareness also generated support from industry. In particular, the oil and gas industry would not have been as involved in finding emissions reductions.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)

The EAC Program raised awareness and educated the public on air quality issues. A wide range of stakeholders participated in the process. The process went very smoothly. Control measures were selected through a consensus-building process that bridged a lot of gaps among stakeholders. As a result, implementation occurred much smoother than if outstanding differences had still remained among stakeholders. This helped unite the community. It also brought organizations together that are now working on projects beyond the EAC Program. In addition, the program led to a shift in lifestyle activities among residents. Virginia DEQ gained a lot of credibility among local communities as a result of the EAC Program.

Greenville County, South Carolina Government

The EAC has had a good impact on Greenville County. The County was designated attainment for the 1997 standard. The EAC Program also provided another benefit for Greenville County. It provided an opportunity for the County to collaborate with Upstate Forever, Save Our Saluda, Sierra Club, and other organizations working to improve air quality. The organizations worked together on all twenty-three strategies and some subsets as well, such as Breathe Better Air at School (B^2@School) program at Fountain Inn Elementary School. Now the B^2@School program is being expanded to Sevier Middle School.

In addition, the Sierra Club suggested offering tax incentives for low emission vehicles. The organization went before the legislature to get funding for this measure. The Duke Power - Leed Steam Plant, the largest emitter of nitrogen oxides (NO_x) in the upstate area, brought together a number of its constituents. They decided to convert the boilers at the plants to low NO_x emitting boilers. This was a

$15 million commitment. The second largest NO_x emitter in the upstate area, Transco, had thirteen compressors that had no controls at all. Transco installed low NO_x boilers early because of its involvement with the EAC.

Aiken County, South Carolina Government (Lower Savannah)
The EAC increased awareness of air quality issues in the Lower Savannah area. For example, the EAC was a factor in the prominence of the air quality outreach at the local Earth Day event. Small municipalities learned a lot about air quality through the EAC Program. Recently, local environmental organizations have spurred on a lot of improvements. However, the EAC was ahead of this recent movement in bringing about local improvements.

ACOG (Oklahoma City)
The EAC Program raised awareness of air quality issues.

Piedmont Triad (COG)
The EAC generated positive impacts in the area. The Triad had been facing a lot of pressure to make significant changes, such as becoming more energy efficient. The pressure came from a number of factors including: MPO requirements, conformity, nonattainment avoidance, and sound economic development.

The EAC Program linked air quality issues to smart growth initiatives and the planning process. This complemented the work of the MPOs in the area. The EAC accelerated the emphasis on greenways, bikeways, pedestrian planning, and other smart growth-type initiatives. The public supported these measures because of the linkage to air quality issues. The impetus for these activities was greatly strengthened by the EAC.

Washington County Government
The biggest impact of the EAC was raising public awareness of air quality issues. People became aware that air quality is not just a "city" issue and that rural areas also play a role in maintaining air quality.

3) Would the program have succeeded without the threat of nonattainment designation or without the program being part of the larger SIP effort?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
No, it would not have succeeded without the threat of nonattainment. Local areas needed a "driver" to motivate them to participate in the program. The threat of being designated nonattainment compelled areas to participate in the EAC.

Georgia DNR
The local communities would not have participated at all without the threat of nonattainment.

Louisiana DEQ
Louisiana DEQ probably would not have participated. The threat of nonattainment designation motivated Louisiana DEQ to participate.

Maryland DNR
Maryland DNR would not have participated without the threat of nonattainment. It wanted to minimize the Nonattainment NSR and Conformity Program requirements.

North Carolina DENR
Some areas might participate without the threat under the right circumstances. Initially, the threat of nonattainment designation motivated the Mountain Area EAC to participate in the EAC. However, the local stakeholders decided to continue participating in the EAC Program even though the area was in attainment.

New Mexico ED
There is not much rationale for an area to join the EAC Program without the threat of nonattainment. The EAC Program encourages areas to take a proactive approach to avoid nonattainment status.

Oklahoma DEQ
It is doubtful that there would be willingness to participate in the EAC without the threat of nonattainment.

South Carolina DHEC
It is not clear if the threat of nonattainment needs to be a factor. South Carolina DHEC hoped it would have participated without being concerned about nonattainment designation. The possibility of nonattainment status was considered an incentive to take actions earlier to improve air quality. South Carolina DHEC's continued "early action" effort demonstrates the desire to meet national standards before nonattainment designations occur.

Tennessee DEC
States and localities need a driver to motivate participation in the EAC. The concern over nonattainment designation led Tennessee DEC to participate. The state did not want to have to deal with the Transportation Conformity Program or the economic development issues associated with the Nonattainment NSR Program.

Texas CEQ
San Antonio would not have participated without the concern of nonattainment designation. The other two areas might have participated. However, Austin, Texas probably would not have adopted the inspection and maintenance program.

Virginia DEQ
Initially, Winchester, Virginia (as part of the Frederick County, Virginia area) probably would not have participated without the threat of nonattainment. Virginia DEQ spent a lot of time in Winchester convincing them to join the EAC. Winchester selected the EAC as the lesser of two evils. However, local attitudes have changed after participating in the program. Communities now see the value of addressing air quality issues and participating in the EAC Program.

West Virginia DEP
West Virginia DEP stated emphatically that it would not have participated without the threat of nonattainment. The state was concerned about the economic consequences of nonattainment. The

EAC created a local dynamic to participate in the program. Originally, Winchester, Virginia was motivated to participate. This spurred the Berkeley and Jefferson Counties to approach the state with interest in the program. Afterwards, Hagerstown, Maryland became interested in participating. Berkeley and Jefferson Counties put together $200,000 for emissions inventory and control strategy development.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
Austin, Texas would have participated without the threat of nonattainment. It is a very motivated area. However, the state would not have been as involved without the concern over nonattainment designation. Due to that concern, the state committed to emission reductions in the Austin area that they probably would not have otherwise.

Chattanooga-Hamilton County APCD
The EAC Program absolutely would not have succeeded without the threat of nonattainment designation. Chattanooga-Hamilton County APCD participated in the program out of concern over the impact of a nonattainment designation on economic development.

Denver RAQC
The EAC Program probably would not have had as much participation without the threat of nonattainment. Denver entered the program while designated attainment but became nonattainment afterwards. However, the City joined the program to avoid nonattainment designation.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The County would not have been able to get local business involved in the process without the threat of nonattainment. It would have been much harder to persuade businesses to join the program. Moreover, the program's methods would not have been as balanced because stakeholder involvement would have suffered.

Greenville County, South Carolina Government
No, the program would not have succeeded in Greenville County without an incentive. It took the threat of nonattainment to nudge the elected officials to move forward with the efforts. Greenville County, South Carolina Government had to spend some time to educate the public officials. Public officials tend to think of air quality problems as a regional problem and not a local problem. The opportunity to take control of developing solutions to the problem appealed to them. Local officials appreciated having the opportunity to develop solutions instead of having EPA devise solutions for them.

Aiken County, South Carolina Government (Lower Savannah)
It is doubtful that anyone would have participated without the threat of nonattainment. However, it is possible that some larger corporations, such as Kimberly-Clark, Bridgestone, and Pepperidge Farm, might have participated because they have had "green" outreach programs since 2000.

ACOG (Oklahoma City)
The EAC Program would not have succeeded without the threat of nonattainment.

Piedmont Triad (COG)
The EAC Program would have been much less efficient without the threat of nonattainment. Concern over nonattainment designation makes local governments and elected officials become more aware of air quality issues. The program's deadlines provide the motivating force to reduce emissions. If EPA does another program, two factors will motivate participation in the program. Increased awareness of air quality issues will be one factor, while the desire to avoid nonattainment will be the other.

Washington County Government
The EAC Program would not work without the threat of nonattainment. Localities do not know what to do about air quality issues. They need the prodding of a nonattainment designation to become involved in the process.

4) Were the Compacts successful at engaging and involving stakeholders at the local level? Were there intangible outcomes from stakeholder engagement such as increasing local awareness that may provide for air quality benefits and better decisions in the future?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
The EAC did succeed in engaging local stakeholders. The EAC Program compelled the state to go beyond working with the "usual" stakeholder groups. The state contacted county commissioners it had not worked with before to sign the EAC MOU. Public interest in the EAC Program was about the same level as with other issues. But, environmentalists may have been more involved in this issue. The media took a real interest in the program. This proved to be helpful in obtaining the support of local elected officials.

Georgia DNR
Georgia learned a lot from the early stages of the EAC process. It is important to have local investment in the program. However, it was the process for the $PM_{2.5}$ focus area that successfully engaged local stakeholders. The increased involvement of stakeholders occurred in most areas of the state with the exception of the Chattanooga area.

Louisiana DEQ
It is unclear whether stakeholder involvement increased. The progress reports did not require an appraisal of stakeholder involvement.

Maryland DNR
There was a fair degree of stakeholder engagement. Businesses did not participate much initially. The program did produce benefits. Air quality forecasting now covers Washington County. Additionally, local businesses and governments now participate in ozone action day programs.

New Mexico ED
The EAC absolutely increased the level of stakeholder involvement. Public engagement in the process was the largest benefit of the program. The state also developed good relationships and had good outcomes with the press and local television.

San Juan County, New Mexico created an ozone task force to study the impacts of ozone in area. In April 2002, the group started talking to the public about ozone, its sources, and its health effects. Public interest and awareness of air quality increased in response to the outreach. When the EAC Program was announced, local governments were asked if they wanted to participate. San Juan County and three localities within the county decided to participate in the program.

North Carolina DENR
The EAC Program increased local stakeholder participation and produced intangible results. North Carolina DENR has had an outreach program since 1997. The EAC Program helped enhance those efforts. As a result, the state's outreach efforts are better now. The outreach generated broad stakeholder representation in all of the North Carolina EAC Program areas. Local people now talk to other local people about air quality issues. The state's efforts also created clean air advocates at the local level.

The EAC Program also helped develop relationships that are being used to address other issues. For example, the EAC Program paid off in Hickory. When Hickory became nonattainment for $PM_{2.5}$, it already had an air quality effort underway through the EAC Program.

Oklahoma DEQ
The EAC did increase stakeholder engagement and produce intangible benefits. Because of the EAC Program, political leaders are aware of the ozone problem. The general public is aware of air quality issues. The business community also shows willingness to participate in improving air quality. The state sees evidence that this level of involvement will continue. For example, the state has submitted voluntary "maintenance" flex-plans for Tulsa and Oklahoma City with additional emissions reductions included in those plans.

South Carolina DHEC
The EAC Programs engaged local governments, environmentalists, councils of governments, industry, and state agencies. The state focused most of its efforts on the nonattainment-deferred areas of Columbia and Greenville. Consequently, stakeholder involvement was greater in those areas. But, the Aiken area and Charleston area also had a good level of local involvement. Rural areas that did not have as much to do still maintained good contact with stakeholders

There is no comparison to the way things were before the EAC Program. The relationship and communication between the state and local stakeholders was not nearly as strong prior to the EAC Program. These stakeholders have expressed an interest in participating again if given the opportunity.

The EAC Program enhanced the state's relationship with stakeholders. This has already proved to be important. The South Carolina legislature must approve all proposed regulations. The state has to demonstrate stakeholder support for a regulation before the legislature will approve it. The state was able to tighten the open burning ban and NO_x reduction regulations. But, the state would have not been able to obtain the stakeholder support needed to get the regulations passed without the improved relationships from the EAC Program.

Tennessee DEC
The EAC Program enhanced stakeholder support and produced intangible benefits. Bigger results always occur when local areas are fully invested in a program. The EAC built good will partnerships with stakeholders.

The Tennessee Environmental Board has a member who represents counties and another member representing cities. The state is very interested in the EAC concept. It is exploring whether states and localities can build on previous programs to continue the EAC concept. Because of the EAC Program, Tennessee now has the infrastructure in place to meet the new standard quicker. It will continue doing more of the same thing to meet the new standard. The state would like to have the opportunity to participate in another EAC Program.

Texas CEQ
The three EAC Program areas in Texas already had an increased level of awareness of air quality issues prior to the start of the EAC Program. During the EAC, there was extensive local involvement to develop and agree on control measures. Those groups are still active. However, stakeholder participation in environmental issues had already been high before Austin, Texas became an EAC Program Area.

Virginia DEQ
The EAC generates much more grass roots involvement than traditional programs. This is due to the small size of the areas. It is also due to the fact that participants are involved in the process from the very beginning. The task forces in both EAC Program areas had a very diverse mix of people.

West Virginia DEP
There was extensive stakeholder involvement in the EAC. All participants appeared to want to find workable control strategies. The state is already involved with stakeholders on the $PM_{2.5}$ standard.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
The EAC Program generated stakeholder involvement and intangible benefits. The regional stakeholder workgroups developed lists of control measures to help ensure acceptance by stakeholders. They also received commitments from stakeholders for future action

Chattanooga-Hamilton County APCD
The EAC did bring stakeholders together in Chattanooga-Hamilton County APCD. Through discussions, local stakeholders identified about twelve measures for the program. In general, suggestions from local stakeholders are better received than ideas from government.

Denver RAQC
The EAC Program generated a greater level of engagement from a wider range of local stakeholders than found in other issues. Stakeholders are now much more aware of air quality issues. The oil and gas industry, refining industry, and transportation community all became involved in the process. The EAC Program also helped lead to an expansion in the outreach program from $50,000 to $2.5 million. The area was expanded while it was part of the EAC Program and brought in 2 new counties that had never before addressed ozone.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The EAC Program did generate stakeholder involvement and intangible benefits. The business community was recognized for the proactive measures done prior to EAC. The SHENAIR program is an example of the benefits associated with the EAC Program.

Greenville County, South Carolina Government
The EAC has been successful in raising stakeholder involvement. Local stakeholders had limited awareness of air quality issues before Greenville County, South Carolina Government started the EAC Program. The County's outreach focused on reaching one community or school at a time. This approach took more time but did raise awareness. The control measures also raised public awareness. The car care, gas can and lawn mower exchange events as well as public presentations and setting up booth are community wide events helped spread the message to citizens that they could take personal actions to improve air quality. Citizens now discuss aspects of air quality that they would not have known about prior to the EAC. At stakeholder meetings, for example, citizens are aware of particulates, the new standards, and other air quality issues. In early 2007, newspaper articles about air quality began to regularly appear and local TV stations made air quality forecast a regular part of the weather forecast.

The EAC process created partnerships and relationships that will come in handy in the future. Mitsubishi, Michelin, BMW, Milliken, and other private organizations joined the stakeholders' committee. Greenville County, South Carolina Government could not have paid the hourly rate necessary to bring these people in to get their technical expertise. Instead, these very knowledgeable technical experts participated in the EAC free of charge. They, and South Carolina DHEC, have helped county staff interpret EPA guidance and are continuing to help Greenville County with air quality issues. In addition, businesses helped sponsor community events.

Aiken County, South Carolina Government (Lower Savannah)
The EAC did engage local stakeholders in the Lower Savannah area during the early stages of the process. During the past year, the entire metropolitan area has been working proactively on $PM_{2.5}$. Many of the same people involved in the EAC are working on $PM_{2.5}$. The relationships established during the EAC Program made the collaboration on $PM_{2.5}$ much easier.

Association of Central Oklahoma Governments (ACOG)
The Oklahoma City EAC definitely did engage local stakeholders. There has not been a lot of spin-off progress yet. However, the community is better prepared because of EAC involvement. In addition, the EAC laid the groundwork for future outcomes.

Piedmont Triad (COG)
The EAC Program generated stakeholder involvement and intangible benefits. The EAC stakeholder group continues to meet quarterly. It consists of Duke Power, RJ Reynolds, local officials, environmentalists, and chambers of commerce.

Washington County Government
Due to rural nature of the region, Washington County did not have much stakeholder participation. There is not much industry in the county. The issues were not that important to the general public.

However, there may have been indirect benefits from the outreach program. People now understand what they can do to improve air quality.

5) Did the compact agreements give local areas the flexibility to develop their own approach to meeting the 8-hour ozone standard that the program touted?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
EAC may possibly have provided flexibility to local areas. The RAQC is the lead planning organization for SIP development for Denver. However, the state and Air Quality Control Commission retain regulatory authority. The state adopts rules that apply statewide or in a geographic subset. RAQC and the state did have more flexibility designing the EAC than available in other programs.

RAQC did a lot of outreach with local governments. In return, RAQC received input and help from affected cities and counties. Local governments do not usually adopt ozone control measures. Under the EAC, however, local governments did conduct more ozone outreach programs.

Georgia DNR
The EAC Program may have given local areas greater flexibility. But, the EAC Program areas in Georgia did not take advantage of the added flexibility.

Louisiana DEQ
The EAC did provide local flexibility. The EAC Program Area had the opportunity to develop a list of potential measures appropriate for the individual characteristics of the community. In addition, the EAC Program did create a different dynamic between the state and the locality. This dynamic probably led to a willing and receptive response to the program from the local area.

Maryland DNR
The traditional SIP approach affords some flexibility to local areas. While the EAC offered a little more flexibility, Maryland DNR believed that the program felt very much like a SIP exercise.

New Mexico ED
Yes, the flexibility was key for buy in and gave the local participants the ability to make their own decisions.

North Carolina DENR
The EAC emphatically did provide flexibility to local areas. North Carolina DENR presented the EAC Program areas with a list of state and federal control measures that would improve air quality. The EAC Program areas had the flexibility to select measures from the list that would work with the individual characteristics of their own communities.

For example, in the Triad EAC, local businesses joined in to help the area reach attainment on time. Duke Power installed a Selective Catalytic Reduction control system a year early. Duke Power also installed remote reading of meters in the area to reduce vehicle idling. RJ Reynolds agreed to switch fuel in the summertime from coal to natural gas to reduce their NO_x emissions.

Oklahoma DEQ
The opportunity for flexibility in local decision-making was critical in obtaining support for the program.

South Carolina DHEC
The EAC provided programmatic and local flexibility. Air quality models indicated that the areas would come into attainment through existing federal programs. This provided flexibility to the state and local areas. Each of the EAC Program areas adopted control measures that made sense for their own areas. For example, an area might be interested in pursuing an anti-idling program to save fuel. The area would find it easier to implement the program after being informed of the air quality benefits by the state.

Tennessee DEC
The EAC Program provided flexibility to local areas. National measures were primarily responsible for bringing the areas into attainment. However, the EAC allowed local areas to contribute to the effort to improve air quality. At times, the local programs included controversial measures such as lowering the speed limits for truckers. In order to be in the EAC Program, Chattanooga-Hamilton County APCD asked for an inspection and maintenance program, which was a controversial move.

Texas CEQ
Local areas, in conjunction with state approval, did receive flexibility in selecting control measures. The EAC Program areas implemented area-specific state rules and measures that were included in the air quality modeling performed for the areas' plans. In addition, some local measures were included in EAC Programs but which did not model.

Virginia DEQ
Virginia DEQ stated that EAC Program provided flexibility.

West Virginia DEP
West Virginia DEP stated that EAC Program provided a lot of flexibility.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
The EAC Program did provide local flexibility. After looked at the emissions for each of the five participating counties, the EAC workgroup set a target emissions reduction commitment level for each county and seven cities in the region (the largest city in each county plus two additional cities). In addition, multi-county measures such as inspection and maintenance programs were implemented in two urban counties and several measures were implemented through state rule (at the request of the local governments) in all five counties.

Chattanooga-Hamilton County APCD
In general, the EAC gave local areas greater flexibility.

Denver RAQC
The EAC gave Denver the flexibility to focus on specific industries of interest.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The EAC clearly gave areas the opportunity to develop a flexible approach. This was a strong selling point for obtaining the support of a skeptical community that was showing resistance to an unknown program.

Greenville County, South Carolina Government
The EAC Program did provide local flexibility.

Aiken County, South Carolina Government (Lower Savannah)
The EAC did provide local flexibility in the Lower Savannah area. Local stakeholders developed a list of voluntary and industrial measures that produced noticeable improvements. The local areas developed what they thought would be best for each individual source or sources.

Association of Central Oklahoma Governments (ACOG)
Yes, but the EAC Program did not have the strength to get areas to choose measures. Instead, they waited for designation before they would do anything. Having a percent reduction target would have changed things.

Piedmont Triad (COG)
The EAC did provide for a more flexible approach. A local stakeholder group put together an initial list of more than one hundred measures. After meeting monthly for one year, the group winnowed the list down to thirty measures. Afterwards, the group submitted and received approval for the measures from the participating local governments.

Washington County Government
The EAC may have provided local flexibility. However, there was not much Washington County could do at the local level. Whatever emissions reductions the County generated would be a drop in the bucket compared to those coming from all the federal and state programs. Washington County's activities focused primarily on educational outreach.

6) Are there environmental benefits as a direct result of the EAC activities regarding pollutants other than ozone?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
There have been additional environmental benefits from the EAC. Air toxics have been lowered by the reduced VOC emissions from lower Reid vapor pressure gasoline. In addition, reductions in NO_x emissions improved visibility and regional haze.

Georgia DNR
There were no other benefits directly resulting from EAC activities. The EAC Program areas selected control measures from a list of state rules. The EAC Program areas developed no local measures. For example, Augusta selected open burning as a local control measure. However, the state rules for open burning were used for Augusta rather than Augusta creating a local regulation.

Louisiana DEQ
Generally, the EAC Program Area did not get a lot of emissions reductions.

Maryland DNR
There were little environmental co-benefits as a direct result of the EAC activities regarding pollutants other than ozone.

New Mexico ED
There were no new local or state measures as a result of the EAC; those are a "work in progress." The area, though, did add a third air quality monitor. The EAC Program paved the way for a larger task force.

North Carolina DENR
The EAC Program produced additional direct benefits. The idling reduction and biofuel programs adopted by EAC Program areas reduced particulate matter (PM) emissions. The open burning ban also contributes to PM reductions but it was a state rule already in place prior to the EAC Program. Additionally, local ordinances reduced vehicle miles traveled by promoting walkable communities. This will reduce PM and carbon dioxide (CO_2) emissions as well.

Oklahoma DEQ
The EAC Program did produce additional direct benefits. As a result of the EAC Program, Oklahoma DEQ added a third air quality monitor. In addition, the very successful EAC Program paved the way for a larger taskforce.

South Carolina DHEC
The EAC Program generated additional direct benefits. South Carolina DHEC is building upon its ozone EAC Program to develop $PM_{2.5}$ and greenhouse gas (GHG) emission reductions programs.

Tennessee DEC
The EAC Program did produce additional direct benefits. The state promoted alternate fuels in the EAC Program. By reducing NO_x emissions, alternative fuels help lower PM as well. The open burning ban has also helped reduce PM, carbon dioxide, air toxics and volatile organic compounds (VOCs).

Texas CEQ
Texas CEQ did not measure per se, but other pollutants benefits were possible. For example inspection and maintenance could benefit Colorado and PM.

Virginia DEQ
The EAC Program provided multiple direct environmental benefits. Roanoke is now looking at reducing $PM_{2.5}$ and GHG. As a result of the EAC Program, Winchester is much more interested in air quality issues of all types. Its residents are more educated and involved in air quality issues than before the EAC Program. Most importantly, the EAC Program spawned the SHENAIR project with NOAA to address air quality in the Northern Shenandoah Valley.

West Virginia DEP
EAC Programs, such as the reduced idling and freight partnership programs, have reduced NOx, PM, and air toxics.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
Control measures adopted during the EAC Program have led to additional environmental benefits. Several measures reduce CO_2. The inspection and maintenance program reduces air toxics and PM. The school bus retrofits reduce PM and air toxics.

Chattanooga-Hamilton County APCD
The EAC activities have led to other environmental benefits. The inspection and maintenance program reduces combustion. The burn bans reduces PM, air toxics, and greenhouse gases.

Denver RAQC
The EAC Program has primarily generated VOC reductions. The reductions from the oil and gas industry have reduced some air toxics, but not by very much.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
Not sure of any non-ozone environmental benefits.

Greenville County, South Carolina Government
The EAC Program did produce additional direct benefits. EPA Region 4 and South Carolina DHEC have been working with Greenville County, South Carolina Government on the $PM_{2.5}$ issue.

Note: A new $PM_{2.5}$ monitor was placed at a location that all agreed met EPA siting guidelines. County officials continue working with DHEC to site an additional $PM_{2.5}$ monitor in Spartanburg. The cooperative spirit the EAC has provided also allowed us to collectively site two new ozone monitors that all agreed met EPA siting guidelines.

Aiken County, South Carolina Government (Lower Savannah)
EAC measures to reduce ozone have also helped lower $PM_{2.5}$. The measures include diesel retrofits and the recent popularity of biodiesel in the area. One biodiesel plant is already in the area and another is being built. Lower Savannah is just under the limit for the $PM_{2.5}$ air quality standard. The area might have exceeded the $PM_{2.5}$ standard if not for the EAC activities.

ACOG (Oklahoma City)
Oklahoma City did not experience any other benefits from the EAC activities.

Piedmont Triad (COG)
The EAC Program did generate additional direct benefits. The North Carolina DENR Clean Smokestacks program continues to reduce PM and sulfates. Additional emissions reductions have occurred through the biodiesel and diesel retrofit programs.

Washington County Government
The EAC Program may have helped reduce PM emissions.

7) To what extent did the EAC activities provide for longer-term emission reductions or create a local "infrastructure" for further or continued action in the future?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE

The Colorado DPHE adopted regulations without expiration dates for the EAC Program. As a result, the regulations will provide long-term environmental benefits. In addition, the planning capacity developed by the Fort Collins area during the EAC Program will be valuable because the area is now designated nonattainment for the 8-hour ozone standard. The RAQC has also become successful at securing grant dollars to conduct outreach work.

Georgia DNR

Aside from the learning experience, the local EAC activities did not provide much capacity for continued action in the future. For example, Walker and Catoosa County commissioners, two local EAC Program Area stakeholders, have not carried EAC efforts forward.

The EAC Program did facilitate inter-state collaboration. Prior to the EAC Program, Georgia and South Carolina had little, if any, coordination on emission control measures. Since the EAC Program, the two states have been working together on reducing $PM_{2.5}$ emissions.

Louisiana DEQ

The control measures enacted for the EAC are permanent.

Maryland DNR

Air quality forecasting now covers Washington County. In addition, local businesses and governments participate in ozone action day programs

New Mexico ED

After the program ended, the EAC task force formed a successor group. The new task force attracts about 80 attendees to the regularly scheduled meetings. There is an oversight group composed of representatives from tribal, federal, state, and local governments. The task force developed a document with control measures for planning agencies in the state. This prepared the groundwork for the next standard.

North Carolina DENR

Local stakeholders developed an awareness of air quality issues through the EAC Program. Because of this, air quality issues will continue to be raised by the activities initiated during the EAC that involve metropolitan planning. For example, air quality is an element in the smart growth principles adopted in planning districts during the EAC. These activities will continue. It is important that the parties implementing the program are government entities that will remain in place long term. Additionally, several of the EAC Program areas established Air Awareness outreach positions to promote public education and outreach. These activities are expected to continue.

Oklahoma DEQ
The participating communities developed an understanding of air quality issues through the EAC activities. As a result, the communities now understand regional haze and mercury issues. This will pay dividends for the new standard.

South Carolina DHEC
The EAC Program areas are continuing their air improvement efforts. As a result of the EAC Program, the state and local stakeholders have established an ongoing dialogue. The participants discuss the new ozone standard and the need for continued efforts to improve air quality.

Tennessee DEC
Due to the anti-backsliding measure, the state and locals have pledged to do everything necessary to stay within the SIP. The EAC activities developed an infrastructure that remains in place for further or continued action in the future.

Texas CEQ
Each of the EAC Program areas has made a commitment to implement the programs through 2012. In addition, public awareness of air quality has influenced local planning activities, particularly in Austin, Texas.

Virginia DEQ
Both of the EAC Program areas are committed to keeping the programs going. Financial support and the new standard will help keep that commitment alive. Roanoke, for example, wants to expand air quality measures beyond ozone to address $PM_{2.5}$ and GHG. In addition, Roanoke has inquired about funding for woodstove changeout programs. Winchester has developed a website, conducted significant outreach, and committed to funding an air quality coordinator.

West Virginia DEP
West Virginia DEP created the position of a regional economic development coordinator to coordinate the EAC activities. This position will likely continue to be funded in the future.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
A regional group of elected officials and staff will continue to work on air quality issues. (This group just developed an 8-hour Ozone Flex Program that has been approved at the state and local level and is awaiting EPA approval). The EAC control measures in the SIP will continue to be implemented for the foreseeable future. In addition, there is no talk of stopping the local measures used in the EAC Program.

Chattanooga-Hamilton County APCD
The burn ban and inspection and maintenance program in Chattanooga-Hamilton County APCD are in the SIP and will remain in effect as long as necessary.

Denver RAQC
The EAC Program has helped the City to deal with future air quality issues. In addition, the emissions reductions from the oil and gas industry will continue into the future

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The County will need to stay involved in air quality issues because the ozone problem can return. All the relevant stakeholders are more willing to work together since the EAC Program.

Greenville County, South Carolina Government
The "local 'infrastructure'" is the strong partnership created during the process with public and private organizations.

Several activities will help continue emissions reductions:

- The B2@School program is planned for all of the Elementary Schools in the County.
- Reducing lawn mowing and having a student patrol encouraging buses and parents not to idle.
- Safe route to school to encourage walking.

Unfortunately, HOV lanes were not implemented but they will continue with community awareness campaign.

Aiken County, South Carolina Government (Lower Savannah)
There is a framework in place for continued action. In addition, South Carolina Electric and Gas added gas turbines and switched to a wood pellet fuel as a permanent measure.

ACOG (Oklahoma City)
The EAC activities did provide assistance for longer-term emission reductions. Oklahoma City is now aware of the type of projects to look for in the future. In addition, the ACOG will likely devote ½ FTE to air quality issues. Hopefully, in the future, the ACOG will have 1 FTE working on air quality issues.

Piedmont Triad (COG)
The EAC created an infrastructure to address air quality issues in the future. PTCOG will continue to take the lead in the effort to improve air quality in the area. The EAC is the platform they will build on for future activities.

As a result of the EAC, a number of regional organizations and programs (PTCOG, regional transportation authority, Triad Air Quality Program, and North Carolina Solar Center) have formed an effective network/infrastructure that continues to work on regional air quality issues.

Washington County Government
The awareness of air quality issues developed through the EAC Program has established a foundation for future action.

8) Will EAC activities result in continued reductions in ozone and air quality improvement activities/policies that were not foreseen at the time the EACs were developed?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
The EAC established an atmosphere that helped create alliances to push the oil and gas industry for emissions reductions. As a result, the state obtained large emissions reductions earlier than would have occurred without the program. The state continues to ask for additional reductions and plans to do so in the future as well. The EAC Program also provided the stimulus for the state to pursue statewide controls on oil and gas facilities to help with ozone air quality in the Front Range area of Colorado.

Georgia DNR
No activities were identified.

Louisiana DEQ
Yes, but no activities were identified.

Maryland DNR
Due to the EAC Program, air quality forecasting now covers Washington County. Local businesses and governments now participate in ozone action day programs.

North Carolina DENR
The EAC led to the development of policies and projects that would not have been implemented otherwise. These include: a school bus anti-idling program, increased use of biodiesel, alternative modes of transportation, expanded bus routes, and policies requiring sidewalks and green-spaces.

South Carolina DHEC
Some measures in South Carolina were in the planning process prior to the new ozone NAAQS, such as a lawn mower exchange. However, stakeholders became interested in the initiatives because of the EAC Programs.

"Capacity building", described in the air quality context as the increased capacity of a local area to continue the air quality improvement effort, continues to take place in South Carolina's EAC Program areas. This is beneficial because local efforts will be important to meet the new standard. Transportation related efforts will also be important. In this regard, South Carolina DHEC is "leading by example" through carpooling and other measures. These efforts are offshoots of the EAC Program.

Tennessee DEC
The EAC Program began with a core group of individuals. However, public participation in the program grew as larger numbers of people began taking voluntary efforts to improve air quality.

Texas CEQ
The EAC led to a range of programs that would not have otherwise occurred. These include: an inspection and maintenance program in Austin, Texas; cement kiln and CPS voluntary reductions in

San Antonio; airport emissions reductions; lawn mower trade-in programs; and retrofits with natural gas for compressor engines in North East Texas.

Virginia DEQ
The EAC stimulated offshoots such as a green building program in Roanoke.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
The EAC control measures will be continued and will continue to reduce ozone. Two new regional activities have been implemented, a region-wide ride share website for twenty-two participating counties and an ozone watch/warning system implemented in conjunction with the state.

Chattanooga-Hamilton County APCD
The EAC activities will lead to continued reductions. The EAC led the local Air Pollution Control Board to collaborate more with the Health Department. This relationship will continue in the future. The EAC Program also helped promote greater use of greenways, bikeways and similar measures. Chattanooga-Hamilton County APCD continues to pursue extended bikeways.

Denver RAQC
The EAC Program created an awareness of ozone that will continue.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The EAC Program has created an infrastructure for further action. The EAC fostered a closer working relationship between state and local governments. By working together on the EAC Program, the different levels of government developed a level of trust that will make it easier to work together on future air quality issues. In addition, public awareness of air quality issues that began during the EAC Program continues to grow. The EAC Program also led to the creation of the SHENAIR project with NOAA to address air quality in the Northern Shenandoah Valley (http://www.isat.jmu.edu/shenair/).

Greenville County, South Carolina Government
Activities will continue because there is still a lot of room for growth. The County would like to get high school and college students to do PSAs. It would like to get some grant money to do a pilot program for PSAs and to do a statewide PSA.

Greenville County, South Carolina Government has discussed continuing the EAC strategies. Although there is no longer any requirement to submit EAC reports, the County sends copies of progress reports to the state and US EPA under a grant requirement. The County also continues working with and record information from Trees Greenville and Garden Clubs on the B^2@School program.

Aiken County, South Carolina Government (Lower Savannah)
Lower Savannah continues to do public outreach.

ACOG (Oklahoma City)
Nothing yet has happened in Oklahoma City.

Piedmont Triad (COG)
PTCOG believes the rate of air quality progress will continue.

Washington County Government
No activities were cited.

9) What improvements could be made to the program to make it better?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
The resources needed to implement the EAC Program were about the same as would be required to reach attainment through the traditional SIP process. It is important that the EAC Program remain part of SIP process. The Colorado DPHE also felt that the 6-month progress reports were appropriate and not burdensome.

Georgia DNR
Georgia DNR believes that the two EAC Program areas were given too much latitude without any technical assistance. In retrospect, the state would have given local areas more guidance on what they needed to do. Georgia would have also stressed that measures adopted by EAC Program areas need to be local measures accompanied by local responsibility.

Georgia DNR believes EPA needs to provide initial assistance to EAC Program areas by suggesting control measures to help local stakeholders get started. Georgia DNR believes EPA must also provide technical assistance to the EAC Program areas throughout the duration of the program.

It is critical that the right elected officials are involved and provide leadership in the process. Georgia DNR believes EPA also needs to be certain that elected officials provide an authentic commitment to participate in the program. Even so, the turnover of elected officials provides a challenge to continuity of the process. The stakeholders who will be impacted by the control measures also need to be involved in the process.

Georgia DNR believes the following elements have been important to the success of Georgia's $PM_{2.5}$ focus areas:

- Educate areas about the problem;
- Provide areas with appropriate local control measures;
- Involve all stakeholders impacted by the measures; and
- Provide technical assistance and help areas stay focused on control measures that will make a difference.

Georgia DNR believes the EAC Program is too resource intensive. For example, the requirements for the formal EAC submittal to EPA for approval were overly burdensome. In this instance, Georgia had to submit the following information: 1) a conceptual description of the ozone problem; 2) an emissions inventory; and; 3) an atmospheric modeling and attainment demonstration. The effort needed to compile this information took about the same amount of resources needed for an attainment SIP.

Georgia believes that these elements are unnecessary for a voluntary program and should not be required in future programs.

Louisiana DEQ
The EAC requirements should be eased. Due to resource constraints, less stringent modeling should be required.

Maryland DNR
The program was too heavy on process. The biannual reporting requirement was overly burdensome for states and localities. It added another level of pressure to state agencies. Maryland DNR submitted fresh reports each time rather than presenting a pro forma response. As a result, the state had to submit a large amount of paperwork each time. Maryland DNR emphasized that the biannual reporting requirement added another level of pressure to state agencies.

EPA expectations are unclear. The state received little feedback from EPA on the progress reports. Although the air quality staff knew the situation was okay, other state departments and localities expected some type of approval or acknowledgement from EPA. To improve the reporting process, Maryland DNR recommends that EPA require that states complete a checklist that would be followed by an EPA recognition/response letter.

The EAC Program created an uneven playing field. When the EAC Program was conceived, Maryland DNR already had a program in place to control emissions at the state level. However, the state did not get credit for it in the EAC Program as part of their base statewide control program.

New Mexico ED
EPA should ensure continued funding for EAC Program areas. A functioning partnership with EPA Regional Offices is important to a successful program. New Mexico ED also believed that the semi-annual reporting was appropriate but more frequent reporting would be burdensome.

North Carolina DENR
More time needs to be built into the timetable to make it a more realistic schedule. One of the state's biggest concerns was having enough time to have the Compact signed. In addition, the EAC Program works much better in smaller areas.

North Carolina DENR made several concessions to environmentalists. The state extended its modeling time to cover a full 10-year period to 2017. There had been concern that the EAC Program did not cover a maintenance program. Although the state was required to do 5 years of modeling, it agreed to model for an additional 5-year period. In addition, North Carolina DENR agreed to conduct annual reviews for new source and VMT growth.

Oklahoma DEQ
EPA must provide funds for participating areas through a grant system. The grant program could require matching funding from recipients. Oklahoma DEQ could not have performed the ozone modeling needed for the EACs without funding from the state Department of Transportation. EPA 105 funding enabled the state to develop a modeling capability but did not provide the capacity to refine the system for the EAC Program areas.

The biannual reporting requirement was worth the effort to avoid nonattainment designation.

South Carolina DHEC
The reporting requirement was burdensome and time consuming. In addition, the reporting procedures were confusing. EPA needs to develop a clearer reporting format.

South Carolina DHEC also had problems calculating emissions reductions. It would be very helpful to have a computer program that conducted the calculations. With such a program in place, the state would not have to take so much time to develop an extensive narrative description. The program should be available to local stakeholders to assist with calculating emissions. This might assist them in their decision making as well.

Tennessee DEC
EPA should consider offering incentives to participate in the program. If the Clean Air Act (CAA) is reopened, an EAC Program should be included in the Act. In the meantime, EPA should consider announcing another EAC Program before or coinciding with issuance of a new nonattainment area boundary memo.

Texas CEQ
The EAC Program should be confined to just demonstrating attainment. The state felt that it was bonus on resources not having to do RFP or transportation conformity. With respect to timing, the EAC process did not match traditional or required attainment dates. In fact, the EAC process was not earlier, it was later. Finally, the EAC Program provided local areas more say in their "destinies."

Virginia DEQ
The reporting requirements were burdensome and redundant. The need to produce bi-annual reports was counterproductive and took resources away from the program. Less frequent reporting would have the same or more value.

Virginia had limited resources to devote to the program. EPA Region 3 did allow Supplemental Environmental Project money to be used for diesel retrofits. An EPA grant or loan program would help EAC Program areas implement local measures. For example, Roanoke is looking for grant for a woodstove changeout program.

West Virginia DEP
There were no real downsides to the EAC Program other than the reporting requirements. The bi-annual reporting requirement was overly burdensome for EPA regions and states. Less frequent reporting would accomplish the same purpose.

EPA should provide assistance for the technical work needed to fulfill EAC requirements. The assistance could come through a matching grant or by providing technical resources.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
The EAC needs to remain part of a SIP to have credibility. states and local areas need an incentive to participate in an EAC Program. It is important that local areas retain the flexibility to develop their

own control measures. In addition, a minimum emission reduction target requirement should be considered to address environmental concerns. Progress reports are important but the EAC requirements were somewhat burdensome. An annual progress report would be preferable to the semi-annual reports required by the EAC.

Chattanooga-Hamilton County APCD
Chattanooga-Hamilton County APCD could not think of anything that should be done to change the program. The County did not believe the reporting requirement was burdensome. Instead, it kept them focused on the program. The County did the reports cumulatively so information only had to be added periodically.

Denver RAQC
One year is too short of a time frame for SIP development. In addition, the legal issues need greater clarity. They are difficult for local areas to comprehend.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
The reporting requirements of the EAC Program were repetitious. A new program should have a more simplified reporting process. The new process should be more quantitative. A checklist may be an appropriate method of reporting progress. In addition, education needs to be a critical component in the initial stages of the program.

Greenville County, South Carolina Government
The reporting requirement takes a lot of paperwork and meetings to keep up with but it is not onerous. However, EPA should adopt a standard electronic form for the progress report for local governments to submit to South Carolina DHEC and from South Carolina DHEC to EPA.

Aiken County, South Carolina Government (Lower Savannah)
Aiken County, South Carolina Government (Lower Savannah) did not have any outstanding concerns. The main concern had been the difficulty EAC organizers had keeping people involved after improvements had been made in local air quality. However, SCDHEC sent out a letter to EAC stakeholders requesting their participation in $PM_{2.5}$ discussions. In the letter, stakeholders became aware of state and federal support for the meetings and programs. It also let them know that $PM_{2.5}$ is a regional, not just local, problem. There was a great response to the invitation. The Lower Savannah group is working again. There is a bigger response when SCDHEC is involved.

ACOG (Oklahoma City)
The EAC Program did not have the strength to get areas to choose measures. The program would be stronger by incorporating a percentage reduction target. This would have improved the local program. The Ozone Flex program is much stronger than the EAC. The EPA's Ozone Flex Program forced ACOG to do much more public participation. Local businesses were more involved in the Ozone Flex Program.

Piedmont Triad (COG)
Money should be provided to local areas for administrative costs. PTCOG did not believe that the EAC reporting requirements were burdensome. The EAC Program had fewer reporting requirements than in

other situations that include EPA funding. Those situations require additional paperwork. For example, the EAC reporting requirements were much easier than the requirements for water quality grants.

Washington County Government
No areas for improvement were cited.

10) Would you do it again?

STATE ENVIRONMENTAL AGENCIES

Colorado DPHE
Colorado DPHE would participate in the EAC Program again because of the strong incentives to come into attainment. For example, the EAC process in the Four Corners area helped bring many stakeholders together, including representatives from the oil and gas industry.

Georgia DNR
Georgia would do the program again. The state learned a lot from this first experience and its collaboration with South Carolina DHEC. Georgia would like EPA to allow states to do an EAC Program for the 2008 ozone standard. However, in order to do the EAC Program again, the state would need to find a way to stretch its resources. At present, Georgia does not know how it would fund participation again.

Louisiana DEQ
Louisiana DEQ would join the program again. The state would like an EAC Program for the new standard to start soon so that areas can get started right away.

Maryland DNR
Maryland DNR's participation would depend upon the area under consideration. Washington County would not participate because it became nonattainment for $PM_{2.5}$. Maryland DNR would enter a rural area on the Eastern Shore if it received credit for its existing program to control emissions at the state level.

New Mexico ED
New Mexico ED would consider participating if the EAC Program provided funding.

North Carolina DENR
North Carolina DENR would join the program again because of the need to obtain emissions reductions from local measures. Because of the commitment to clean air in the EAC Program areas, less outreach will be needed to educate stakeholders for the 2008 ozone standard.

Local areas appreciate being able to take action to fix air quality problem before being designate nonattainment. The EAC communities were very proactive and progressive in developing activities. The EAC approach elicits a more positive response from stakeholders than does the traditional approach.

The state received negative reactions to the traditional process. Local areas expressed much frustration when the $PM_{2.5}$ nonattainment designations were announced. The EPA/state simply labeled an area

nonattainment rather than offering to develop a collaborative approach to solving the air quality problem. Being designated nonattainment for $PM_{2.5}$ took away the benefits that had been obtained by participating in the EAC. This produced a negative reaction to the EAC concept.

West Virginia DEP
West Virginia DEP would support another EAC in Martinsburg because the local stakeholders were engaged in the process. However, it may not support an EAC in other areas because of uncertainty over the level of local participation.

LOCAL GOVERNMENT AGENCIES

CAMPO (Austin, Texas)
CAMPO (Austin, Texas) said they would absolutely participate again.

Denver RAQC
Denver would do the program again.

Chattanooga-Hamilton County APCD
Chattanooga-Hamilton County APCD would absolutely do the program again.

Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia)
Winchester-Frederick County Economic Development Commission (Northern Shenandoah Valley, Virginia) would definitely participate again.

Greenville County, South Carolina Government
Greenville County would participate again. The County will continue to write and distribute progress even if there is not another EAC Program.

Aiken County, South Carolina Government (Lower Savannah)
Yes, Aiken County, South Carolina Government (Lower Savannah) would participate again.

ACOG (Oklahoma City)
Oklahoma City would definitely participate in the EAC again. It just signed an Ozone Flex agreement.

Piedmont Triad (COG)
The PTCOG area would enthusiastically participate in another EAC Program. Another EAC Program would reflect positively on EPA's understanding of motivation and management.

Washington County Government
Washington County is a rural area that never had to think about air quality. The County did not understand the problem or what to do because it had never been designated nonattainment for any pollutant. Maryland DNR encouraged Washington County to become an EAC Program Area. The County wanted to be proactive in addressing the problem. It also wanted to avoid transportation conformity. The County relied heavily on the state for technical assistance because it lacked the ability and necessary resources. Midway through the EAC process, however, Washington County learned it would have to do transportation conformity for the $PM_{2.5}$ standard.

Washington County appreciated the EAC concept and "gentler" approach to air quality issues. The County did not fully understand what it was getting into before agreeing to participate in the program. It did not realize that the EAC would be such a labor intensive process that required more work than just doing conformity. If the area had been designated nonattainment, the County's involvement would have been limited to attending MPO meetings to deal with conformity issues. Consequently, Washington County would not likely participate in an EAC Program again. It would take less effort to go through the traditional process.

TRADITIONAL AREA PROGRAM DISCUSSIONS

1) **Is the traditional model a more or less efficient way to deliver clean air to citizens in these areas (versus the EAC approach)? If so, how? If not, why?**

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR

The Rocky Mount area felt that it was unfairly designated nonattainment when EPA made designations for the 8-hour ozone standard. Seventy-five percent of the emissions causing the problem in Rocky Mount came from the Raleigh-Durham-Chapel Hill, North Carolina area. The remaining twenty-five percent of the emissions came from Fayetteville, NC.

The traditional approach was not more efficient in Rocky Mount. It did not generate support for environmental measures in the local area. The EAC Program approach would have helped to change attitudes and generate local support for the program in Rocky Mount.

Tennessee DEC

Due to the restrictive nature of the process, the traditional model is a less efficient method of improving air quality. The EAC Program provides areas with the opportunity to utilize control measures that work best for local conditions without imposing the regulatory burden. This allows participants to buy into the program instead of feeling that they are being told what they must do. The collaborative dialog among participants provides for a more efficient method of reaching attainment status.

Instead of following the traditional approach, five areas in Tennessee adopted voluntary EAC-type activities. The Chattanooga EAC developed an inspection and maintenance (I/M) program that brought the area into attainment. Due to the overwhelming benefits from the EAC Program, the American Lung Association withdrew its opposition and supported the program. The traditional route would not have provided an opportunity for Chattanooga to implement an I/M program.

The selection criteria used by the EAC Program also contributes to the efficiency of the program. Modeling is a central part of the EAC Program process. The EAC Program only selects locations that demonstrate through modeling that they have the capability to come into attainment through voluntary measures. As a result, local areas were selected for the EAC Program if they had an opportunity for success. Since it would have been required under the traditional approach, the modeling aspect of the EAC Program is neither more nor less of a burden. The selection criteria made the EAC Program a more efficient approach than the traditional model.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
Rocky Mount officials could not compare the two approaches because they are not familiar with the EAC Program process.

Nonetheless, it is important for a local area to have personal contact with state and federal agencies. Rocky Mount had good pre-existing working relationships with North Carolina Department of Transportation and the Federal Highway Administration. The agencies were very cooperative in providing needed assistance. This enabled Rocky Mount to comply with program requirements without difficulty. In comparison, larger urban areas may have more difficulty meeting program requirements under the traditional approach.

The redesignation process takes a very long time under the traditional approach. It would be beneficial to local areas if the time period could be shortened.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Knoxville went through much of the EAC Program process. At the air quality summit in 2003, the EAC Program process brought leaders together at an early stage to think about the consequences of nonattainment designation. It was very much in favor of the EAC Program from a political standpoint.

However, the modeling came up a little short for participation in the program. Knoxville started out with an 8-hour ozone design value of 91 parts per billion (ppb), but the amount of voluntary reductions needed was too immense. If not for a severe summer with higher ozone levels, the area would have come into attainment. Knoxville responded by carrying through with many of the voluntary measures initially formulated during the EAC Program process. Consequently, it can be viewed as an area that went through an EAC-type process but within a traditional framework.

The opportunity to do an EAC would be helpful but it is not known whether it would be more efficient. The cost of Knoxville's program was just as much due to needed modeling and staff resources as required by the traditional approach.

2) What has been the impact of the traditional approach on State and local resources?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
Rocky Mount was close to the standard and relied on existing federal and state measures to attain.

Tennessee DEC
The resource allocation for Tennessee's voluntary programs was a burden but required by law. Modeling is a central component in the EAC Program process. The state agency paid the University of Tennessee $300,000 a year to conduct required modeling. However, modeling would have been required under the traditional approach as well. So, the modeling aspect of Tennessee's voluntary program was not considered to be more or less burdensome.

The EAC Program process required more effort in the early stages as opposed to the heavy back loading of the traditional program. Although the voluntary EAC Program approach cost a little bit more upfront, it produced a greater yield of benefits.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
The process is time consuming but it is also a great learning experience. As a result of going through the traditional approach, Rocky Mount officials are more sympathetic to making improvements to enhance air quality.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Four local areas worked with Tennessee DEC, and independently as well, to try to create a unified SIP. As noted, Knoxville's program cost the same as the traditional approach. The resource cost was sizeable but unavoidable.

Because of its larger resource base, Knox County was able to do more voluntary measures. This was due to the large size of the metropolitan area and to the accompanying tax base that is associated with such a population base.

3) Did the traditional approach require more money and resources over the EAC approach?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
In the short term, it took the state fewer resources to work with Rocky Mount under the traditional approach. The EAC Program process requires a lot of resources up front but has long-term benefits that are not realized by the traditional approach.

Tennessee DEC
More local resources would be required for a locally-driven EAC-type approach than for the traditional approach.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
Rocky Mount used about five full time equivalents during the process. Officials believe that more staff time is required in the traditional approach. However, the resource burden was not overtaxing for the City.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
More local resources would be required for a locally-driven EAC-type approach than for the traditional approach.

4) What have been other impacts, intended or not, if any, of the traditional approach on local communities and State air agencies?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
Rocky Mount is an economically depressed area that is losing population and jobs. It felt stung by the nonattainment designation. Conversely, the EAC Program process does help areas that accept the need to improve air quality.

Tennessee DEC
The traditional approach can breed resentment. Conversely, the EAC Program motivates people by getting stakeholders to buy into the process.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
State agencies and EPA required substantial work products. Rocky Mount conducted public hearings. Rocky Mount came out of nonattainment quickly. Officials felt that Rocky Mount came out of nonattainment more quickly than the EAC Program areas.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Programs are easier to justify to the general public under the traditional approach. Politics are removed from programs when they are backed up by regulatory requirements. Under the traditional approach, local areas can point out that they are required by EPA (or another agency) to implement certain measures. It was much harder politically to implement some measures that were adopted voluntarily by a local area (e.g., reduced speed limits for trucks). So, it is easier to implement programs under the traditional approach.

5) Was the traditional approach successful at engaging and involving stakeholders at the local level?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
The traditional approach engaged stakeholders in the Raleigh-Durham-Chapel Hill, North Carolina area but did not engage stakeholders in Rocky Mount. However, the state did not focus too many resources in Rocky Mount since it had an 8-hour ozone design value of 85 ppb when designated nonattainment.

Tennessee DEC
The voluntary EAC-type approach adopted by Tennessee and implemented by the Clean Air Coalition definitely engaged local stakeholders in areas that were required to do the traditional process. The voluntary approach provides incentives to local areas to participate. For example, stakeholders in the Knoxville and Memphis areas became involved in the hope of getting an EAC.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
Yes, the traditional approach successfully engaged and involved stakeholders at the local level.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Knoxville did not follow the traditional approach. But, the voluntary program used by Knoxville did bring together county mayors, local congressmen, and various other stakeholders.

6) **Were there intangible outcomes from stakeholder engagement such as increasing local awareness that may provide for air quality benefits and better decisions in the future?**

STATE ENVIRONMENTAL AGENCIES

Tennessee DEC
Tennessee DEC's voluntary program increased public awareness, built alliances, and provided for a dialog between stakeholders. The program also promoted behavioral changes in the public.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
Industry, MPO committees on technical coordination and transportation advising, and local government were well engaged in the process. There was not much public participation.

The Long Range Transportation Plan produced many benefits. Rocky Mount intends to follow the plan.

The situation encouraged adjacent areas to work together by taking a multi-region approach.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Knoxville is considered to be a college town that has many progressive-minded people. There were a lot of complaints that not enough had been done to improve the natural environment in the community. This may provide the foundation for future activities. Also, the pathway of communication between stakeholders is now much more open. The improved communication contributed to the formation of the regional clean air coalition.

7) **Did the traditional approach give local areas the flexibility to develop their own approach to meeting the 8-hour ozone standard?**

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
The traditional approach provides less opportunity and less incentive for local areas to develop their own approach. There is also less interaction between government and business in the traditional approach. On the other hand, the EAC Program's powerful incentives encourage government and business to act more like partners.

Tennessee DEC
Under the CAA there is no local flexibility in the traditional approach. In particular, section 182 of the CAA does not provide any flexibility. Memphis applied for and received a reclassification of its ozone classification but did not reach attainment. As a result, Memphis is ineligible to receive an extension. Knoxville is in limbo because of the uncertainty for subpart 1 ozone nonattainment areas as a result of a court vacature of EPA's implementation rulemaking.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
No, Rocky Mount followed the lead of North Carolina DENR, Federal Highway Administration, and transportation groups. Rocky Mount representatives are satisfied with this approach. Local areas would not know how to do it differently. It is difficult for local areas to develop alternative approaches to complex issues when the state already has a good approach. It is hard to have expertise at local level.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
No, but the EAC Program does.

8) Are there environmental benefits as a direct result of traditional approach activities regarding pollutants other than ozone?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
No, the focus is on reducing ozone precursors. In the traditional approach, there are a lot more requirements that need to be met. The goal is to meet those minimum requirements. Conversely, the EAC Program is an open-minded process. There is a fundamental difference between the two approaches. Under the traditional approach, the state has to solve the problem. Under the EAC Program model, the group works to solve the problem. This leads to more innovative solutions.

Tennessee DEC
Under the traditional approach, the Stage I vapor recovery provided for an alleviation of air toxics. However, this applied to the EAC Program process as well.

Chattanooga voluntarily asked for an I/M program that was politically unpopular but resulted in a Volkswagen plant coming into the area. This would not have been allowed under the traditional program. In addition, speed limit reductions were powerful measures but would not have been done if an area relied upon the traditional approach.

The state responded to an increased interest in environmental issues by making the AQI available to the public.

LOCAL GOVERNMENT AGENCIES
Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
There may be benefits for other pollutants but Rocky Mount representatives are not aware of what them.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Many of the measures implemented under the voluntary approach were done for ozone but had an effect on $PM_{2.5}$ and regional haze.

9) To what extent did traditional approach activities provide for longer term emission reductions or create a local "infrastructure" for further or continued action in the future?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
The EAC Program approach provided these benefits to a greater extent. The traditional approach is more short sighted and does not get local, long-term emissions reductions. Neither Rocky Mount nor Raleigh-Durham-Chapel Hill, North Carolina has hired an AQ coordinator. Also, neither area has an AQ-focused central task force

Tennessee DEC
The traditional approach locks in control measures and contingency measures for an extended period of time. This approach also provides for continued and more concrete control measures.

Under the voluntary approach, the state of Tennessee created a regional Clean Air Coalition to bring together county mayors and other influential individuals to develop a cohesive clean air plan. The Coalition continues to operate. It illustrates the ongoing gains from the EAC Program.

Tennessee DEC would not have to conduct the same level of stakeholder outreach in another EAC-type program. Much of the groundwork has already been established. Tennessee believes that behavioral changes are going to be the factor that decides whether an area will be able to reach attainment in the future. Because lifestyle changes will be voluntary by design, the best way to encourage them is through an EAC-type program.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
The traditional approach created a close working relationship between parties within the Metropolitan Statistical Area and the state. The relationship has proven to be beneficial. In addition, Rocky Mount learned from the experience.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
A great deal of information went out to the public during the voluntary program. This generated an awareness of air quality issues. Incentives were given to Knox County and Knoxville employees to participate in the smart trips program. The program also generated advocacy for increased bus routes, especially to outlying areas. In general, the process helped to lay the groundwork for programs such as I/M.

10) Will traditional approach activities result in continued reductions in ozone and air quality improvement activities/policies that were not foreseen at the time of designation?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
No, traditional approach activities are not expected to produce unforeseen reductions.

Tennessee DEC
Desulfurization will result in mercury reductions that were not foreseen. This will help out mercury-impaired waters.

LOCAL GOVERNMENT AGENCIES
Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
In general, public awareness of air quality issues increased. The growing awareness may lead to vehicle emissions reductions if the public changes personal behavior patterns by driving less or filling up at appropriate times. Otherwise, it may be too early to tell if unforeseen reductions will emerge. All measures may not be in place yet.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
Most of the voluntary activities ran their course. Additional reductions will be seen with accompanying growth to the area. One criticism of the voluntary approach is that it keeps initial momentum going but falters once the initial catalyst has been removed. For example, rising gas prices had an initial effect but have since leveled off. Programs are permanent under the traditional approach. These programs generate more long-term reductions.

11) What improvements could be made to the traditional approach to make it better?

STATE ENVIRONMENTAL AGENCIES

North Carolina DENR
Before designations occur, the state should be given an opportunity to address air quality issues to see if problems can be solved through control measures, both at the state and local level. Those data should be used as the basis for designations. In addition, the CAA is punitive. The state was forced to obtain VOC reductions when they are unnecessary.

Tennessee DEC
EPA needs to write rules that will not get vacated. The heavy reliance on EPA rules that have been vacated has put the state in a bad situation.

LOCAL GOVERNMENT AGENCIES

Rocky Mount Urban Area MPO and Carolinas Gateway Partnership (Rocky Mount)
Anything to speed up the conformity process would be beneficial. Rocky Mount representatives did not know how to improve the process.

Knox County, Air Quality Management, Department of Public Health (Knoxville, Tennessee)
A Knoxville representative believes that politics at the federal level are immense. The traditional approach cannot really be changed without some major reform (e.g., Clean Air Interstate Rule and Clean Air Mercury Rule). Either way, local areas would find it helpful to receive guidance on how to implement programs under the traditional approach.

For the EAC Program, a local area must be close to the standard to participate in the program. That is the key to the program. By being close to the standard, the area is predisposed to succeed. It is the only way to realistically expect the EAC Program to work in an area.

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